

## **APPENDIX G – SECTION 7 CORRESPONDENCE**

## APPENDIX G – SECTION 7 CORRESPONDENCE

Page	Written By:	Date:	Subject
G-1	Corps	02/22/2001	Request List of endangered species for project area
G-2	USFWS	05/07/2001	Provides information requested on 02/22/2001
G-14			Bald Eagle Nest Locations
G-15	Corps	05/31/2001	Informal Consultation – determination of no adverse effect on T&E species stated by Corps
G-17	USFWS	06/26/2001	Does not concur with Corps determination. Meeting scheduled for July 25, 2002 to further discuss issues
G-20	USFWS	10/05/2001	States that request for formal consultation and Biological Assessment should be provided by The Corps
G-29	Corps	02/13/2002	Biological Assessment provided
G-46	USFWS	03/07/2002	Request for additional information
G-49	Corps	04/05/2002	Modified Biological Assessment provided
G-57	USFWS	04/10/2002	States that draft Biological Opinion will be delivered within 90 days (07/03/2002)

Mailed out  
2-22-01

Planning Division  
Environmental Branch

FEB 22 2001

Mr. Stephen Forsythe  
U.S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960-3559

Dear Mr. Forsythe:

The U.S. Army Corps of Engineers (Corps), Jacksonville District, is currently preparing NEPA documentation for a planned extreme drawdown and habitat enhancement of Lake Tohopekaliga (Lake Toho), located within the Kissimmee Chain of Lakes, Osceola County, Florida. The planned project is to be a combined effort of the Florida Fish and Wildlife Conservation Commission, the South Florida Water Management District, and the Corps. The drawdown is proposed to begin in November 2001. Lake Toho is intended to be lowered from a high pool stage of 55 to 48.5 feet NGVD by March 2002. At that time, enhancement activities will begin that may include muck removal, burning, discing and herbicide application to reduce dense vegetation, tussock formation and organic build-up on the lake bottom. Re-flooding of Lake Toho may begin in June 2002. The time necessary for the lake to rise after reflooding begins will be dependent on rainfall. Under normal conditions, the lake should return to a normal low pool stage by fall of 2002.

Pursuant to Section 7 of the Endangered Species Act, as amended, the Corps is requesting a list of any threatened or endangered species or critical habitat that may be present in the proposed project area. Enclosed please find a map, (enclosure 1) of the proposed project area and a copy of the Scoping letter, (enclosure 2), which gives a detailed description of the proposed plan. If you have any suggestions, questions or require additional information, the points of contact for this project are Ms. Catherine Byrd, 904-232-2016 and Ms. Liz Manners, 904-232-3923.

Sincerely,

James C. Duck  
Chief, Planning Division

Enclosures

G-1



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
South Florida Ecological Services Office  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960



May 7, 2001

Mr. James C. Duck  
Chief, Planning Division  
Jacksonville District Corps of Engineers  
P.O. Box 4970  
Jacksonville, FL 32232-0019

Re: Lake Tohopekaliga Drawdown and Enhancement Project

Dear Mr. Duck:

This letter responds to your request dated February 22, 2001, for initiation of informal consultation under section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Your office requested information on the presence of threatened and endangered species and designated critical habitat for the Lake Tohopekaliga (Lake Toho) Extreme Drawdown and Habitat Enhancement Project in Osceola County.

Based on the information you provided in the letter, our office conducted a Geographic Information System (GIS) and Florida Natural Areas Inventory database check to determine potential species locations for this project. This was done in conjunction with discussions with other Federal and State agency personnel in an effort to develop a sensitive species and critical habitat list for this proposed project. Our office also supports a web site at [www.verobeach.fws.gov/Species\\_lists/countyfr.html](http://www.verobeach.fws.gov/Species_lists/countyfr.html) that provides a complete list and discussion of federally-listed species and their habitats.

A GIS location check indicates numerous bald eagle (*Haliaeetus leucoccephalus*) nests adjacent or directly along the shores of Lake Toho. According to biologists with the Florida Fish and Wildlife Conservation Commission (FWCC), the Lake Toho area supports a higher than average density of bald eagles (J. Buntz, FWCC, personal communication). Nest surveys, which are conducted by FWCC biologists, indicate that many of these nests are currently active. We have enclosed a copy of the Habitat Management Guidelines for the Bald Eagle in the Southeast Region for information relative to avoiding or minimizing detrimental human-related impacts to this species, particularly during the nesting season.

Breeding areas for the threatened Audubon's crested caracara (*Caracara plancus audubonii*) have been identified on the southern portion of Lake Toho. Buffer areas for these nesting territories are established for these nesting locations to encompass the southern shore of the lake.

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James C. Duck  
May 7, 2001  
Page 2

The Everglades snail kite (*Rostrhamus sociabilis plumbeus*) has established nesting areas in central Florida wetlands including Lake Toho and East Lake Toho. Marsh habitat in this area provides important foraging habitat for the endangered Everglades snail kite. Recent surveys indicate six active nests in the Lake Toho area.

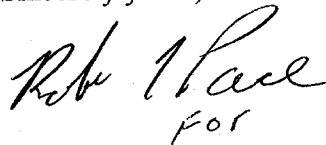
The federally endangered wood stork (*Mycteria americana*) has also been documented in the Lake Toho area by FWCC biologists. No nesting activity has been confirmed, however.

Designated critical habitat has not been established in Osceola County for any of the above described species.

The proposed project description provided only limited information on the types of actions to be conducted as part of this drawdown and habitat enhancement project. The Fish and Wildlife Service anticipates that additional project designs and description of features will be provided to our office for review. Specifically, habitat enhancement work such as muck removal, discing, and herbicide applications will need to be further described and evaluated by your agency for effects to federally-listed species.

Thank you for the opportunity to provide information regarding threatened and endangered species for this project. If you have questions or comments, please contact Betty Grizzle at 561-562-3909, ext. 269.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "J. Slack", with the word "For" written in smaller letters below it.

James J. Slack  
Field Supervisor  
South Florida Ecological Services Office

Enclosure

cc:

FWCC, Kissimmee, FL (Jon Buntz)  
SFWMD, West Palm Beach, FL (Stefani Melvin)

G-3

# HABITAT MANAGEMENT GUIDELINES FOR THE BALD EAGLE IN THE SOUTHEAST REGION



G-4

THIRD REVISION - JANUARY 1987

## Introduction

These guidelines are published and issued by the U.S. Fish and Wildlife Service, Southeast Region, but were prepared in consultation with all the Southeastern State wildlife agencies and a number of bald eagle experts, with assistance from FWS solicitors. A number of Federal and State laws and/or regulations prohibit, cumulatively, such acts as harassing, disturbing, harming, molesting, pursuing, etc., bald eagles, or destroying their nests, (see Section IV); although advisory in nature, these guidelines represent a biological interpretation of what would constitute violations of one or more of such prohibited acts. Their purpose is to maintain and/or improve the environmental conditions that are required for the survival and well-being of bald eagles in the Southeastern United States, and are designated essentially for application in bald eagle/human activity (principally land development) conflicts. The emphasis is to avoid or minimize detrimental human-related impacts on bald eagles, particularly during the nesting season.

## General

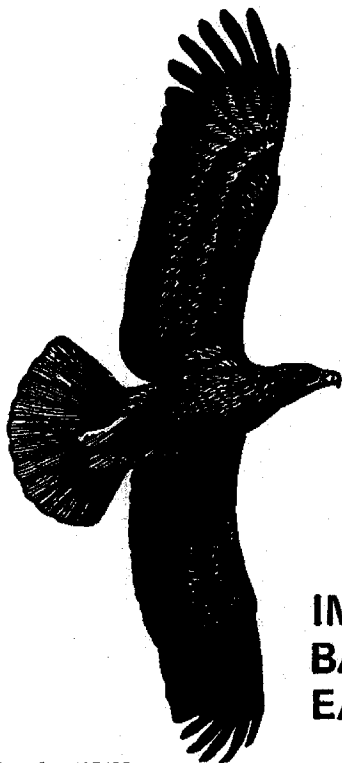
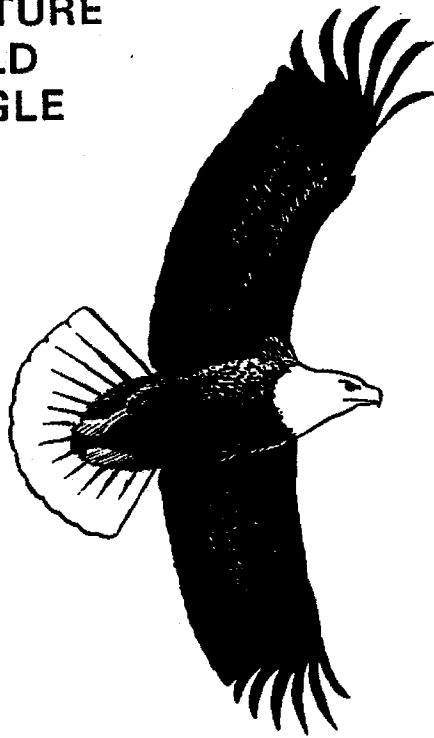
Individual bald eagle pairs exhibit considerable variation in response to human activity, depending in part upon the type, frequency, and duration of activity; extent of modification of the environment; time in the bird's reproductive cycle; and various other factors not well understood. Therefore, it cannot be predicted with absolute certainty the effects a given disturbance might have on a particular pair of bald eagles. Certain human activities are, however, known to disturb bald eagles more than others, and are addressed in the following sections as recommended restrictions. The guidelines are divided into sections on nesting, feeding, roosting, and legal considerations.

- I. **NESTING:** In the Southeast, the bald eagle nesting period is usually from October 1 to May 15. However, in the northern portion of the range, nesting has occurred as late as August. Individual pairs return to their same territories year after year, and often territories are inherited by subsequent generations. Eagles are most vulnerable to disturbance early in the nesting period, i.e. during courtship, nest building, egg laying, incubation, and brooding (roughly the first 12 weeks of the nesting cycle). Disturbance during this critical period may lead to nest abandonment and/or chilled or overheated eggs or young. Human activity near a nest later in the nesting cycle may cause premature fledging, thereby lessening the chance of survival.

**Loss of Nests or Nest Trees:** Although bald eagle nests are legally protected, a nest in and of itself, from a biological perspective, is relatively inconsequential to a given pair of eagles (a pair can construct a nest in less than a week). It is the nest site that originally attracted the pair that is of critical importance. It is not uncommon for nests to be blown from trees by storms, after which the resident pairs typically renest on the same sites, often in the same trees. Therefore, in instances where nests, and even nest trees, are lost, these guidelines should continue to apply in their absence for a period extending through at least two complete breeding seasons subsequent to the loss.



**MATURE  
BALD  
EAGLE**



**IMMATURE  
BALD  
EAGLE**



TO AVOID CONFUSION WITH MATURE  
GOLDEN EAGLE REMEMBER:

- IMMATURE BALD EAGLES HAVE  
WHITE ON WING LININGS
- AND DO NOT HAVE FEATHERS  
EXTENDING TO TOES



**"Abandoned" Nests:** Bald eagles often use alternate nests in different years. Although all nests used by a given pair are situated in the same general vicinity, some nests go unused for several consecutive years and thereby may appear abandoned. Even a solitary nest can go unused for several years, often due to the death of one member of the resident pair, and then be reoccupied by either the original pair or one member of the original pair with a new mate. Even in instances where both members of a pair have died, the site would likely be taken over by another pair if no habitat degradation occurs. For these reasons, these guidelines should apply to apparently "abandoned" nests for a period extending at least through five consecutive breeding seasons of non-use.

#### **Management Zones:**

A. **Primary Zone:** This is the most critical area and must be maintained to promote acceptable conditions for eagles.

1. **Size:** Except under unusual circumstances, the primary zone should encompass an area extending from 750 to 1,500 feet outward from the nest tree. The precise radius distance between these two extremes would be dependent upon the proximal and spatial configuration of the critical elements (nest tree(s), feeding area, roost trees, etc.) within a particular nesting area, or other compelling factors.

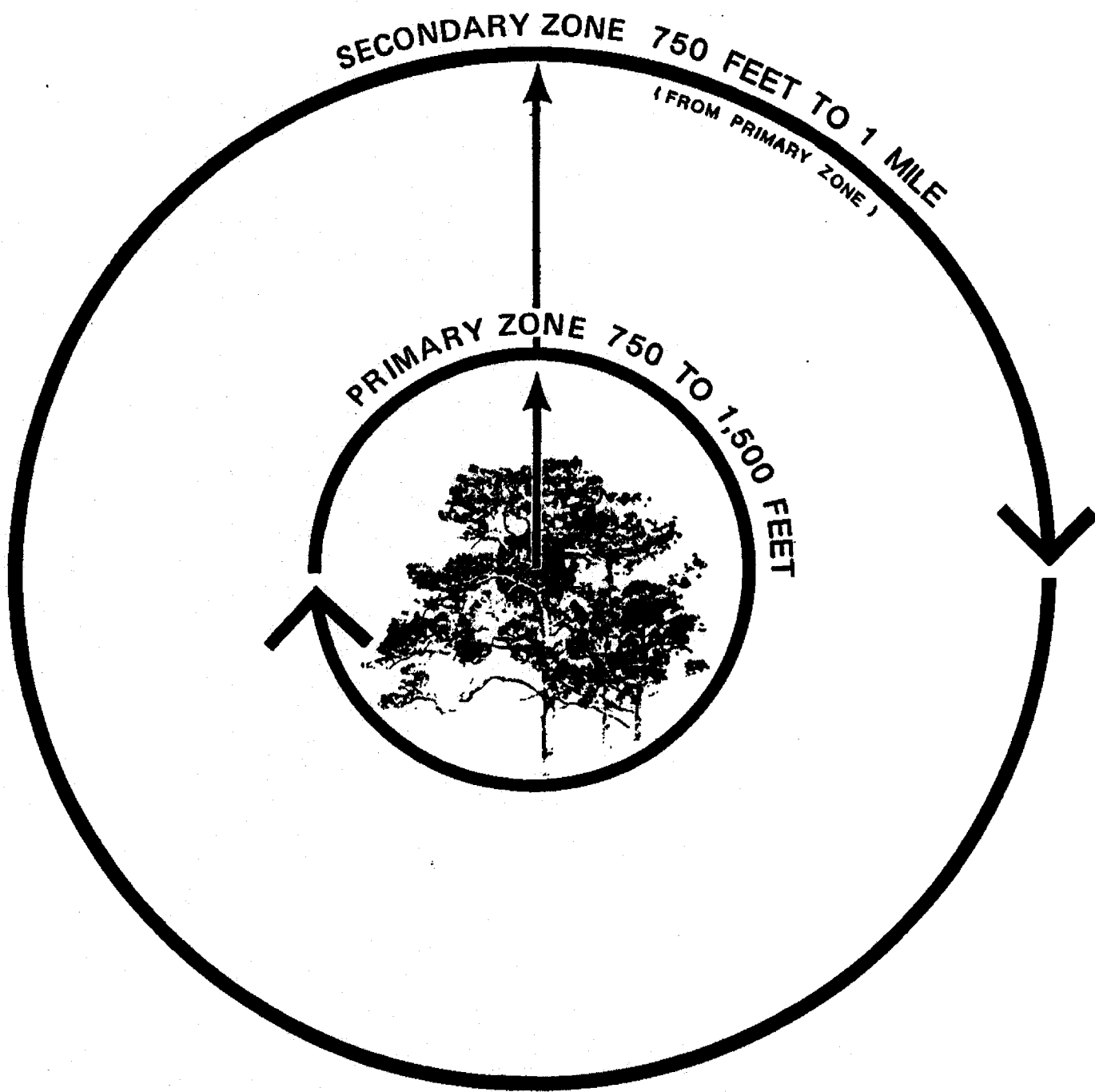
#### **2. Recommended Restrictions:**

- a. Close proximity of the following activities to bald eagle nests are likely to have detrimental impacts on eagle nesting and, therefore, should not occur within the primary management zone at any time:

- (1) Residential, commercial or industrial development, tree cutting, logging, construction and mining; and
- (2) Use of chemicals toxic to wildlife.

- b. The following activities would likely be detrimental while eagles are present and, therefore, should be restricted in the primary zone during the nesting period, but not necessarily during the non-nesting season:

- (1) Unauthorized human entry; and
- (2) Helicopter or fixed-wing aircraft operation within 500 feet vertical distance or 1,000 feet horizontal distance from a nest.



B. **Secondary Zone:** Restrictions in this zone are needed to minimize disturbance that might compromise the integrity of the primary zone and to protect important areas outside the primary zone. The secondary zone should be arranged so as to be contiguous with feeding areas and provide a protected access between nests and the feeding area. In some cases that would involve extending a corridor from the primary zone to a particular feeding area, with that corridor requiring the same restrictions as the secondary zone.

1. **Size:** The secondary zone should encompass an area extending outward from the boundary of the primary zone, a distance of 750 feet to 1 mile. The precise distance will be dependent upon site-specific circumstances.

2. **Recommended Restrictions:**

a. Certain activities within the secondary zone are likely to be detrimental to bald eagles and in most cases should be restricted. These activities include, but are not necessarily limited, to:

- (1) Development of new commercial and industrial sites;
- (2) Construction of multi-story buildings and high density housing developments between the nest and the eagles' feeding area;
- (3) Construction of new roads, trails, and canals which would tend to facilitate access to the nest; and
- (4) Use of chemicals toxic to wildlife, such as herbicides or pesticides.

b. Other activities may take place in the secondary zone, but only during the non-nesting period. Even intermittent use or activities of short duration during nesting are likely to constitute disturbance. Examples are logging, land clearing, construction, seismographic activities employing explosives, mining, oil well drilling, and low-level aircraft operations. Minor activities such as hiking, bird watching, fishing, camping, picnicking, hunting, and recreational off-road vehicle use may be permitted in the secondary zone at any time.

II. **FEEDING:** These guidelines are designed to enhance the quality of bald eagle feeding areas and eliminate or minimize human disturbance.

A. The use of toxic chemicals in watersheds and rivers where bald eagles feed should be prohibited.

B. Alteration of natural shorelines where bald eagles feed should be prevented or limited. Degraded shorelines should be rehabilitated where possible.

- C. Water quality in eagle feeding areas should be monitored and remedial steps taken when needed.

**III. ROOSTING:** These guidelines are designed to help preserve present roosting sites and provide future habitat.

**A. Roosts within and adjacent to nesting territories**

1. Within the primary management zone, no trees, living or dead, should be removed.
2. Within the secondary management zone, as many large trees as possible, living or dead, should be retained as roost and perch trees. Characteristically, these should be the larger trees in the stand. Trees with open crowns and stout lateral limbs are preferable.

**B. Communal Roosts**

1. There should be no significant logging, land clearing, or disruptive human activity within 1,500 feet of traditional roost sites.
2. Bald eagle roosting concentrations should be brought to the attention of the Fish and Wildlife Service or State wildlife agency so that a public or private agency can consider preservation of the roost by purchase, easement, or land exchange.

**IV. LEGAL CONSIDERATIONS:**

**A. Federal Statutes:**

1. The Bald Eagle Protection Act (16 U.S.C. 668-668d), and the regulations derived therefrom (50 CFR 22), state, in part, that no person "... shall take ... any bald eagle ... or any golden eagle, alive or dead, or any part, nest, or egg thereof ...," with 'take' meaning "... to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb ... ." Whoever violates any part of the BEPA may be fined from \$5,000 to \$10,000 or imprisoned from 1 to 2 years or both.
2. Section 9 of the Endangered Species Act of 1973 (16 U.S.C. 1531), as amended, makes it unlawful to 'take' any listed species with 'take' meaning to "... harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct ... ."

For persons who violate the provisions of Section 9, the penalties can be civil or criminal with fines of from \$5,000 to \$20,000 and/or imprisonment from 6 months to 1 year. Section 7 of the ESA requires that all Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat.

3. The Migratory Bird Treaty Act (16 U.S.C. 703-711) makes it unlawful "... to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, ... offer for sale, sell, ... , any migratory bird, any part, nest or eggs of any such bird ... ." Violators may be fined from \$500 to \$2,000 and/or imprisoned from 6 months to 2 years.

## **B. State Statutes**

### **1. State of Alabama:**

Section 9-11-232 of Alabama's Fish, Game and Wildlife regulations curtails the possession, sale, and purchase of wild birds. "Any person, firm, association, or corporation who takes, catches, kills or has in possession at any time, living or dead, any protected wild bird not a game bird or who sells or offers for sale, buys, purchases or offers to buy or purchase any such bird or exchange same for anything of value or who shall sell or expose for sale or buy any part of the plumage, skin or body of any bird protected by the laws of this state or who shall take or willfully destroy the nests of any wild bird or who shall have such nests or eggs of such birds in his possession, except as otherwise provided by law, shall be guilty of a misdemeanor. . . ." Section 9-11-236, which prohibits the hunting of or possession of protected birds during closed season and carries a fine of up to \$500, also protects eagles.

### **2. State of Arkansas:**

Section 14.01 of the Official Codebook of Arkansas Game and Fish Commission Regulations states, "It shall be unlawful to take or attempt to take wild birds or bird eggs." A violation of this code carries a \$100 to \$500 fine.

### **3. State of Florida:**

Rule 39-27.011 of the State of Florida Wildlife Code (Chapter 39, Florida Administrative Code) reads, "No person shall kill, attempt to kill, or wound any endangered or threatened species," and Rule 39-27.002(1) states, in part, "No person shall pursue, molest, harm, harass, capture or possess any endangered or threatened species or parts thereof or their nests or eggs . . . ." (The bald eagle is listed as a threatened species by the State of

**State of Florida (cont'd):**

Florida.) Violation of those regulations constitutes a second degree misdemeanor punishable by a \$500 fine and/or up to 60 days in jail.

**4. State of Georgia:**

State law 27-3-22, referring to wildlife, states, in part, "It shall be unlawful for any person to hunt, trap, take, possess, sell, purchase, ship, or transport any hawk, eagle, owl, or any other bird or any part, nest, or egg thereof . . . ."

**5. State of Kentucky:**

Chapter 150, Section 330, of the Kentucky Fish and Wildlife Codes, revised in 1986, reads ". . . No person shall take, pursue, possess, purchase or sell or attempt to do so, any migratory birds, except as authorized by the migratory bird treaty act (40 stat. 755) as amended and regulations under it . . . ." Section 183 prohibits the importing, transporting, or possessing of endangered wildlife.

**6. State of Louisiana**

Chapter 9, Section 1901.C., which was amended in 1981, prohibits or carefully regulates ". . . the taking, possession, transportation, exportation from the state, processing, sale, or offer for sale or shipment within the state of . . . endangered species." (Endangered or threatened species are defined as those covered under the Federal Endangered Species Act, as concurred in by the Louisiana Wildlife and Fisheries Commission.) The bald eagle is recognized as an endangered species in Louisiana.

**7. State of Mississippi:**

Section 49-5-7 of the Mississippi Code of 1972 reads, "No wild bird other than a game bird shall be pursued, taken, wounded, killed, captured, possessed, or exported at any time, dead or alive. No part of the plumage, skin, or body of any bird . . . shall be sold or had in possession for sale in this state. No person shall molest, take or destroy the nests or eggs of any wild bird, or have such nests in his possession . . . ." Section 49-5-109 states, ". . . it shall be unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship, and for any common or contract carrier knowingly to transport or receive for shipment any species or subspecies of wildlife appearing on the following lists: (1) the list of wildlife indigenous to the state determined to be endangered within the State . . . ." (The bald eagle is listed as endangered in Mississippi.) Any person who violates these regulations will face a \$1,000 fine and/or imprisonment for up to 1 year.

**8. State of North Carolina:**

In 1985 North Carolina law G. S. 113-294 was amended to include subsection(1) which refers specifically to eagles. It reads:  
". . . any person who unlawfully takes, possesses, transports, sells or buys any bald eagle or golden eagle, alive or dead, or any part, nest or egg of a bald eagle or golden eagle is guilty of a misdemeanor. Unless a greater penalty is prescribed for the offense in question, any person convicted under this subsection is punishable by a fine of not more than \$1,000, or imprisonment of not more than 1 year, or both."

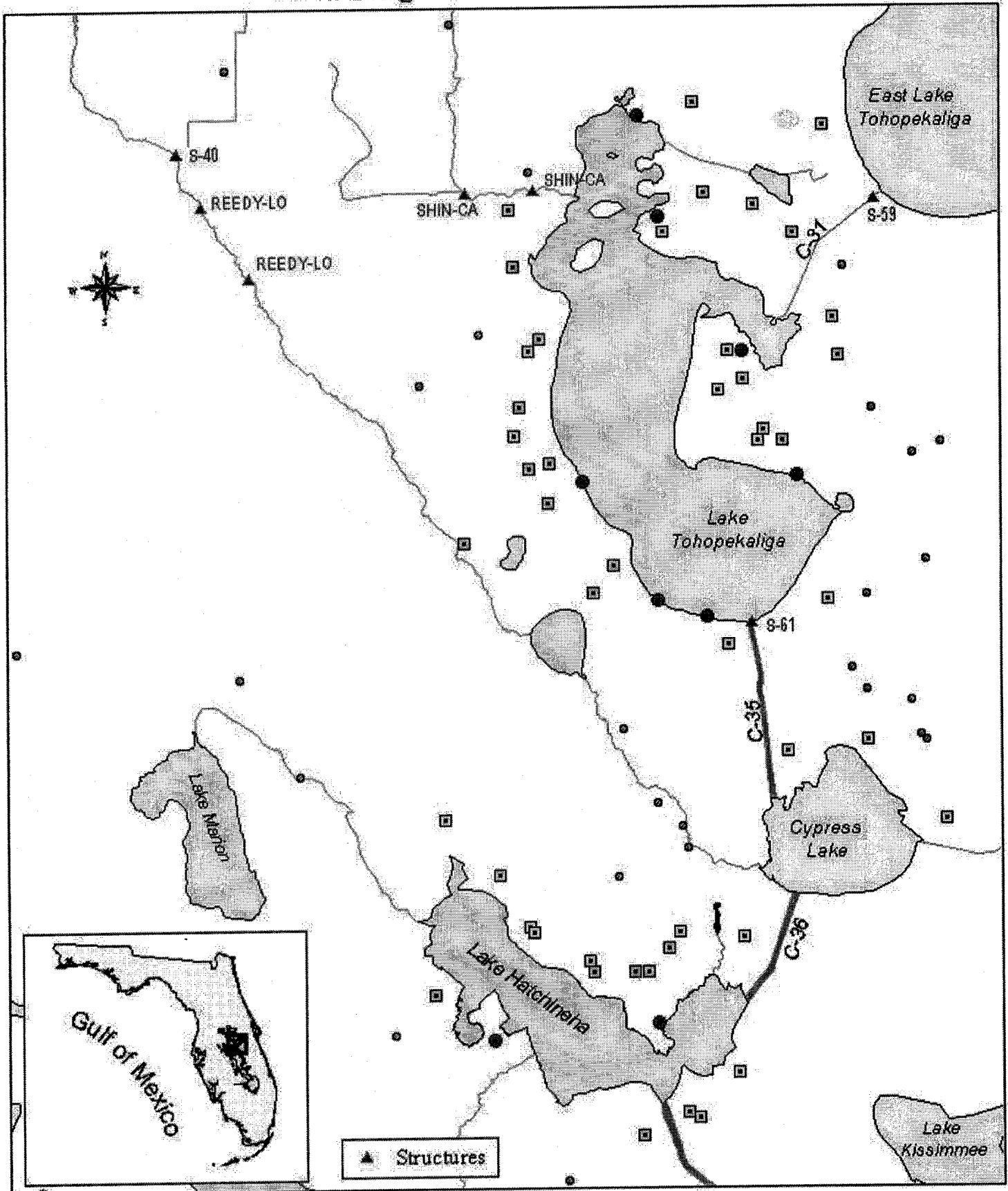
**9. State of South Carolina:**

Regulation 123-160, derived from the Nongame and Endangered Species Conservation Act, and adopted in December 1976, protects eagles and other wildlife of the Orders Falconiformes and Strigiformes. "It shall be unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship, and for any contract carrier knowingly to transport or receive for shipment any such species or products or parts thereof except by permit for scientific, educational or falconry purposes issued by the South Carolina Wildlife and Marine Resources Department."

**10. State of Tennessee:**

Section 70-8-105(c) of the Tennessee Nongame and Endangered or Threatened Wildlife Conservation Act of 1974 states, ". . . it shall be unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship, and for any common or contract carrier knowingly to transport or receive for shipment any species or subspecies of wildlife appearing on any of the following lists: (1) The list of wildlife indigenous to the state determined to be endangered or threatened within the state pursuant to subsection (a); (2) The United States' List of Endangered Native Fish and Wildlife as it appears on April 5, 1974 (Part 17 of Title 50, Code of Federal Regulations, Appendix D); and (3) The United States' List of Endangered Foreign Fish and Wildlife (Part 17 of Title 50, Code of Federal Regulations, Appendix A) . . . ." A violation of this code constitutes a \$25 to \$1,000 fine and/or imprisonment for up to 1 year.

# Bald Eagle Nest Locations



- Eagle Nests with Drawdown Activities Potentially within Primary Buffer Zone.
- ☒ Eagle Nests with Drawdown Activities Potentially within Secondary Buffer Zone.
- Eagle Nests with No Drawdown Activities Potentially within Buffer Zones.

The Eagle Nest Locations were provided by FFWCC. The map was compiled by the Kissimmee Division, SPWMD. The SPWMD Division is responsible for the accuracy of the data for any data provided and assumes any liability for use or misuse of the data. The data is for informational purposes only and is not to be used for any other purpose.

2 0 2 Kilometers





MAY 31 2001

Planning Division  
Environmental Branch

Mr. James Slack  
U.S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960-3559

Dear Mr. Slack:

This letter is being sent in response to your letter dated May 7, 2001, providing information under section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.) on the presence of threatened and endangered species and designated critical habitat for the Lake Tohopekaliga (Toho) Extreme Drawdown and Habitat Enhancement Project in Osceola County.

The U.S. Army Corps of Engineers (Corps), Jacksonville District, is currently preparing an Environmental Impact Statement (EIS) for the planned extreme drawdown and habitat enhancement of Lake Toho. The drawdown is proposed to begin in late 2001. Lake Toho is intended to be lowered from a high pool stage of 55 to 48.5 feet NGVD by March 2002. At that time, habitat enhancement activities will begin that may include muck removal, burning, discing and herbicide application to reduce dense vegetation, tussock formation and organic build-up on the lake bottom. Re-flooding may begin in June 2002. The time necessary for the lake to rise after reflooding begins will be dependent on rainfall. Under normal conditions, the lake should return to a normal low pool stage by fall of 2002. Enclosed please find a map, (enclosure 1) of the proposed project area and a copy of the Scoping letter, (enclosure 2), which gives a detailed description of the proposed plan.

Since the purpose of the EIS is to evaluate the impact of the water regulation schedule change, rather than the habitat enhancement activities (which are evaluated during the Department of Army permit process, refer to permit # 199805442),

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we have determined that of the endangered species listed, the one that could possibly be affected by lowering the water level is the snail kite. However, in order to avoid adverse effects, biologists from the Florida Fish and Wildlife Conservation Commission (FWC) will construct nest boxes to support any snail kite nest that is constructed and in danger of collapse during the drawdown. This should eliminate nests falling due to the lowering of water levels. Although there are breeding areas for the threatened Audubon's crested caracara, currently active bald eagles nests, and wood storks documented in the Lake Toho area, we feel that drawing down the water level will have no adverse effects on these endangered species.

In conclusion, we have determined that the Lake Toho Extreme Drawdown will have no adverse effect on threatened or endangered species. This concludes our informal consultation under section 7 of the endangered species act as required by NEPA. Please let us know if you concur with our determination. If you have any suggestions, questions or require additional information, the points of contact for this project are Ms. Catherine Byrd, 904-232-2016 and Ms. Liz Manners, 904-232-3923.

Sincerely,

James C. Duck  
Chief, Planning Division

Enclosures

Byrd/CESAJ-PD-EP/201/SLW 5/29/01  
Manners/CESAJ-PD-EP  
Asosta/CESAJ-PD-EP  
Smith/CESAJ-PD-E  
Brooks-Hall/CESAJ-DP-I 5/30/01  
Duck/CESAJ-PD

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# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
South Florida Ecological Services Office  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960



June 26, 2001

Mr. James C. Duck  
Chief, Planning Division  
Jacksonville District  
U.S. Army Corps of Engineers  
P.O. Box 4970  
Jacksonville, Florida 32232-0019

Service Log Number: 4-1-01-I-749  
Project: Lake Tohopekaliga Extreme Drawdown  
and Enhancement Project  
Local Sponsor: Florida Fish and Wildlife  
Conservation Commission  
County: Osceola

Dear Mr. Duck:

This letter responds to your letter dated May 31, 2001, requesting concurrence with the Army Corps of Engineers' (Corps) determination under section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*) for the Lake Tohopekaliga (Lake Toho) Extreme Drawdown and Enhancement Project. As explained in your letter, your evaluation of effects to listed species relates to the water regulation schedule change, rather than habitat enhancement activities, as the latter activities were considered separately through the Corps' permit review process.

Species evaluated by your office for effects related to the Lake Toho drawdown include the Audubon's crested caracara (*Caracara plancus audubonii*), bald eagle (*Haliaeetus leucoccephalus*), wood stork (*Mycteria americana*), and Everglade snail kite (*Rostrhamus sociabilis plumbeus*). In your letter, you have determined that no adverse affects are expected for the Audubon's crested caracara, bald eagle, and wood stork. For the Everglade snail kite (snail kite), you determined that there could be potentially adverse affects by the lowering of the water level. To avoid adverse effects, biologists from the Florida Fish and Wildlife Conservation Commission (FWCC) have committed to constructing nest boxes to support any snail kite nest that is constructed and in danger of collapse during the drawdown.

James C. Duck  
June 26, 2001  
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The Fish and Wildlife Service (Service) has traditionally and continues to support periodic drawdowns for the Upper Kissimmee Chain of Lakes proposed by the FWCC, the South Florida Water Management District (SFWMD), and the Corps. The Service is cognizant of the benefits to lake habitat provided by the Upper Kissimmee Basin lake drawdowns in connection with other habitat enhancement actions (e.g., muck removal, disking, burning of organic material).

Periodic drawdowns and habitat enhancement activities generally provide important habitat improvements for the snail kite and other species that utilize the lake for foraging, sheltering, and breeding activities. Ideally, lake management schedules throughout the Kissimmee Chain of Lakes should be modified to resemble the water level conditions in the pre-management period. However, these water regulation schedules are currently constrained by flooding concerns and water supply considerations.

The Service believes that appropriate planning for these periodic drawdowns must include consideration of climatic conditions related to dry and wet cycles of south and central Florida, particularly for drought conditions associated with *La Niña* climatic oscillations. Specifically, anthropogenic-induced extreme drawdowns require evaluation as to adverse effects to the snail kite during multiple-year droughts, because it may be difficult to restore lake levels and appropriate nesting vegetation in subsequent years to allow for snail kite nesting and foraging opportunities. In addition, because the snail kite feeds exclusively on the apple snail (*Pomacea paludosa*), the timing of proposed drawdowns requires evaluation of the potential effects on survival of snails during the drawdown period, particularly as it relates to recruitment of local populations of snails in subsequent years.

Lake Toho provides one of several refugia areas for the snail kite during periods when low water levels in other marsh areas in south and central Florida are unable to support suitable foraging and nesting habitat. For 2001, water levels in south Florida are at extreme drought conditions, and snail kite nesting areas other than Lake Okeechobee and the Water Conservation Areas have become more critical to survival of the species. Also, water levels in Lake Kissimmee may be particularly relevant to snail kite use in Lake Toho. Water levels in Lake Kissimmee and Lake Toho have remained at very low levels as a result of the current drought conditions. However, due to the severe drought conditions throughout central and south Florida, snail kites are using habitat at both lakes this breeding season for nesting. Thus, the continued low water levels in central and southern Florida marshes present a higher level of risk for adverse affects to nesting snail kites when coupled with the drawdown currently scheduled for 2001-2002 at Lake Toho.

Nesting boxes are not appropriate as a means to reduce adverse affects to the snail kite. The Service believes that an alternative strategy would be to schedule the drawdown earlier in the nesting season so that birds will not be attracted to areas proposed for drawdowns that will

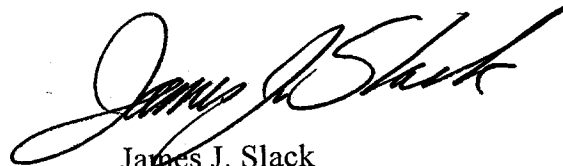
James C. Duck  
June 26, 2001  
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result in a loss of structure (collapse) of nesting vegetation. Drawdowns that occur after the peak apple snail egg production period would also provide for better recruitment of apple snail populations.

In conclusion, the Service supports this and other drawdown projects for ecosystem restoration. The Service concurs with the Corps' determination of no adverse effects to the Audubon's crested caracara, bald eagle, and wood stork as a result of the change in water regulation schedule. Given the current drought conditions and the snail kite's foraging and nesting requirements, the Service believes that the proposed drawdown for Lake Toho requires additional evaluation by the Corps to determine potential adverse affects to the snail kite. As currently proposed, the Service is unable to concur with the Corps' determination of no adverse affects to the snail kite for the proposed change in water regulation schedule for Lake Toho. The Service appreciates being able to continue informal consultation discussions with the Corps in an attempt to assist the Corps in reaching a "not likely to adverse affect" determination for the snail kite. The Service looks forward to participating in planning discussions with the Corps and species experts from the FWCC and the SFWMD to determine the best course of action for this project and other drawdowns proposed for the Upper Kissimmee Basin. A meeting to discuss this issue is currently scheduled for July 25, 2001, in Gainesville, Florida. These discussions should include an effort to define climatic and water level conditions that would constitute recovery from the current drought condition to a degree that would allow lake drawdowns with reduced risk for adverse effects, including incidental take, to the snail kite.

If you have additional questions or comments, please contact Betty Grizzle at 561-562-3909, extension 269.

Sincerely yours,



James J. Slack  
Field Supervisor  
South Florida Ecological Services Office

cc: FWCC, Kissimmee, FL (Marty Mann)  
FWCC, Gainesville, FL (Jim Rodgers)  
SFWMD, West Palm Beach, FL (Stefani Melvin)

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# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
South Florida Ecological Services Office  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960



October 5, 2001

Colonel May  
U.S. Army Corps of Engineers  
Jacksonville District  
400 West Bay Street  
Jacksonville, FL 32232

Log No.: 4-1-99-I-306  
Application No.: 1998-05442 (IP-EB)  
Dated: September 5, 2001  
Applicant: Florida Fish and Wildlife  
Conservation Commission  
County: Osceola

Dear Colonel May:

The Fish and Wildlife Service (Service) has reviewed the proposed project for Lake Tohopekaliga (Lake Toho) that seeks to modify and extend permit number 199805442 (IP-EB). The applicant, the Florida Fish and Wildlife Conservation Commission (FWCC), proposes to increase dredging activity from 4 million cubic yards to 6.7 million cubic yards, extend the permit for an additional two years, and create two additional in-lake disposal islands. This letter is submitted in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*) (FWCA) and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (ESA). We have assigned Service log number 4-1-99-I-306 for this permit application.

## PROJECT DESCRIPTION

The applicant proposes to increase the dredging of aquatic vegetation and organic material from the shoreline of Lake Toho and create two additional in-lake disposal islands. Organic material will be removed using a variety of heavy equipment and disposed of on both in-lake and upland disposal sites. The additional 2.7 million cubic yards will be disposed at previously permitted locations or within the two new additional in-lake disposal locations of 2 and 8 acres in size, Islands 1 and 2, respectively.

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The purpose of the project is to promote habitat enhancement by the removal of nuisance vegetation and organic material that has established in Lake Toho. The removal of nuisance and invasive monocultural plant communities, organic muck, and established tussocks is anticipated to provide for the re-establishment of beneficial aquatic plants for the benefit of fish and wildlife.

On January 21, 1999, the Service responded to the original permit application with specific recommendations and requests for additional information (FWS 1999a). On September 22, 2000, the Service responded to the notice of intent to prepare a draft EIS for the Lake Toho extreme drawdown and habitat enhancement with specific suggestions and concerns (FWS 2001). Although the original permit has been issued, work has not started.

The proposed permit modification will not include an extreme lake drawdown as the dredging activity will be conducted at normal low pool stage. Although it is not clear how muck removal and construction of two additional in-lake spoil islands can be completed at normal low pool stage, the permit application states that should a drawdown become necessary to remove this additional material, the applicant is required to coordinate with the Army Corps of Engineers (Corps) Planning Division. This alteration in water regulation schedule will require the preparation of an Environmental Impact Statement (EIS).

#### THREATENED AND ENDANGERED SPECIES

Lake Toho and surrounding wetland habitats support several federally-listed threatened and endangered species. This list includes the endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*), threatened Audubon's crested caracara (*Caracara plancus audubonii*), threatened bald eagle (*Haliaeetus leucoccephalus*), and endangered wood stork (*Mycteria americana*). Upland habitat surrounding Lake Toho may also provide supporting habitat for the threatened eastern indigo snake (*Drymarchon corais couperi*). Critical habitat has not been designated in Osceola County for any of the above listed species.

According to the public notice, the Corps has determined that the proposed modification to the permit is not likely to adversely affect the bald eagle, Everglade snail kite, or "any other endangered or threatened species."

The Service's response to permit number 199805442 (IP-EB) (FWS 1999a) indicated concurrence with the Corps not likely to adversely effect determination for the bald eagle. This concurrence was based on special conditions in the permit that provide for minimization of the disturbance of bald eagle nests. Specifically, removal of vegetation and organic material using heavy machinery should be prohibited within the primary zone (750 ft) and secondary zone (1,500 feet) from an eagle's nest during the nesting season (October 1 - May 15). The creation of two additional in-lake disposal islands will require additional mobilization of heavy equipment and care should be taken to adhere to these conditions.

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Apple snails (*Pomacea paludosa*), the primary prey for the Everglade snail kite, will clearly be affected by actions under permit number 199805442 (IP-EB). The muck removal effort for Lake Toho in 1987 removed 222,500 cubic yards. The previously permitted project will involve removing 4 million cubic yards of material and will therefore affect a significant portion of Lake Toho's perimeter and apple snail habitat. Darby *et al.* (1998) observed  $\geq 80\%$  mortality during a drawdown on Lake Kissimmee in 1996 and 1997 of approximately 5.5 feet (1.7 meters) for approximately 5 months. Loss of recruitment and mortality is expected to result in a two to three year reduced availability of the apple snail as a food source for the Everglade snail kite. The Service is concerned that re-growth of desirable apple snail forage and structural habitat, such as bladderworts and spikerushes (*Utricularia* sp. and *Eleocharis* sp.), may be delayed for an extended period of time upon aggressive post-management growth of native colonizing and non-native invasive macrophyte species. The removal of an additional 2.67 million cubic yards of vegetation and muck, in addition to the previously permitted 4 million cubic yards and planned water level decrease of approximately 6.5 feet (1.96 meters) for 5 months or more, may increase the time needed for desirable macrophyte establishment and subsequent recovery of apple snail and Everglade snail kite populations.

The creation of in-lake disposal islands will effectively reduce the contiguity of littoral marsh habitat and result in conversion of littoral habitat to upland habitat. This will adversely affect snail kite populations because they require clear and open foraging areas to visually search for apple snails. Interspersing the marsh with upland islands will create areas of dense herbaceous and woody vegetation that can reduce foraging efficiency (FWS 1999b). Additionally, creation of "upland islands" in wetland habitat constitutes a loss of snail kite foraging habitat.

The Service's response to permit number 199805442 (IP-EB) (FWS 1999a) requested additional information from your office or the applicant relative to potential effects to the Everglade snail kite. This information was not received and we were not able to concur with the Corps determination of not likely to adversely affect the Everglade snail kite or complete formal consultation. The Service believes that the proposed drawdown, currently under review through the EIS process, is interrelated and interdependent to the proposed muck removal activities; thus we suggest that you request initiation of formal consultation.

In order for the Service to begin the formal consultation process for both proposed projects, we ask that the information we requested, as well as the alternatives considered in the EIS, be provided in accordance with 50 CFR §402.14(c). The formal consultation process for the project will not begin until we receive your request accompanied by all of the information, or a statement explaining why that information cannot be made available. We will notify you when we receive this additional information; our notification letter will also outline the dates within which formal consultation should be complete and the biological opinion delivered on the proposed action.



## FISH AND WILDLIFE COORDINATION ACT

The Service has traditionally supported drawdowns as a lake habitat management tool for the Kissimmee Chain of Lakes (FWS 1995). Although not well described nor documented in the literature or within internal agency reports, it is presumed that both the static condition of Lake Toho and nutrient inputs contribute to proliferation of nuisance vegetation. During a site visit by Service biologists on September 6, 2001, a significant area of littoral zone was observed to contain floating and submerged aquatic plants, such as the exotic *Hydrilla* and other nuisance plants. Lake level stasis is also thought to promote formation of floating tussocks wherein patches of aquatic plants, primarily fragrant water lily and spatterdock, with associated peat and starchy roots, lift up from the bottom and float to another location where they lodge.

In 1997, the South Florida Water Management District (SFWMD) and cooperating agencies, prepared a draft *Management Plan for the Kissimmee Chain of Lakes* (Management Plan) that focused primarily on identification of management issues related to *Hydrilla* control and identification of impacted native habitats as result of deposition of organic sediments. The Management Plan stated that treatment of invasive aquatic plants with herbicides or mechanical removal represented the most effective and preferred strategy for aquatic plant control for these lakes, but was not necessarily a long term solution. Identification of a biological control agent(s) was a stated goal for aquatic plant managers as a more cost effective solution.

Lake drawdowns of the Kissimmee Chain of Lakes on a twelve year cycle, in conjunction with muck removal, burning, discing, and herbicide applications, were identified in the Management Plan as a recommended management strategy for habitat enhancement. However, non-sustainable lake management strategy may suffer from future complications regarding vegetation and muck removal. The construction of in-lake disposal islands represents a permanent change to Lake Toho that may have unintended and potentially detrimental consequences to the lake's ecosystem.

Service biologists visited Lake Toho on September 6, 2001 and observed a largely undeveloped shoreline and no shortage of wildlife habitat. Considerable muck buildup was observed in some areas while other areas of the lake appeared to have an extensive and healthy littoral zone. The Service understands that the FWCC will be funding a study to document plant and animal community composition on the proposed in-lake disposal islands.

The Service has identified the following resource concerns relative to the issuance of this permit:

1. The in-lake disposal islands may become an internal source for nutrient loading. The Service understands that the muck and associated nutrients are already in the lake and the creation of in-lake disposal islands will essentially redistribute organic matter. Nutrients can be re-introduced into the lake ecosystem directly via flux from island sediments,

erosion, and indirectly through leaf litter from island vegetation. As observed by Service biologists on September 6, 2001, cattle may have access to in-lake disposal islands. Cattle manure is deposited directly on the highly sloped islands and will wash directly into the lake during rain events which will increase nutrient loading into the lake. A study by James *et al.* (1994) on water quality conditions for Lake Toho indicated that the one-time removal of nutrients at Lake Toho in 1987 through muck removal actions was much smaller in proportion to the amount of total phosphorus and total nitrogen removed as a result of wastewater diversions from 1987 to 1992. The lake may therefore be acting as a source of nutrients rather than a sink. This would provide argue against leaving dredged/disc'd organic material at in-lake disposal locations.

2. Erosion of the islands may occur due to the soil type, wave and wind action, and possible cattle presence and appears likely given that no landscape plan has been submitted by the applicant for the islands. Data on the long-term persistence of the islands are not available. The primary composition of the islands is high organic content muck and vegetation that may be highly susceptible to erosion. Because the islands are likely to be the highest landmasses in the area, they will have little shelter from wind; thus, wind erosion may be high. Islands may be directly accessible by cattle from ranches bordering the lake. The presence of cattle on an in-lake disposal island, observed by Service biologists on a recent site visit, revealed a high degree of trampling that may augment island erosion.
3. The Service is concerned that exotic and nuisance plants will become established on the proposed in-lake disposal islands. It is also not clear from the permit application that the applicant has developed a re-vegetation plan for the proposed islands.
4. Placement of in-lake disposal islands along the lakeshore creates multiple sheltered areas that may trap organic material. Areas in between islands and areas located between islands and shore are well protected from wind and waves and are likely to become settling places for suspended organic materia, which may accumulate at an accelerated rate. Consequently, the back side of islands may fill in and the in-lake disposal sites may become peninsulas without additional management activities.
5. The Service prepared written comments (FWS 1999a) on the previous Lake Toho permit application (1998-05442 IP-EB) indicating our concerns related to contaminant issues. A health advisory for mercury is still in effect for Lake Toho recommending limited consumption of largemouth bass (*Micropterus salmoides*), bowfin (*Amia calva*), and gar (*Lepisosteus* sp.). Drying and re-wetting of organic sediments may increase methylmercury production and has been documented by USGS scientists (William H. Orem, USGS, personal communication). The potential for increased methylmercury

production may be high when muck is removed, consolidated, and formed into in-lake spoil islands.

6. Although habitat enhancement activities are generally supported if properly designed and managed, it is not clear if in-lake disposal islands are designed to simply attract existing wildlife or actually augment wildlife populations.
7. Public access to islands has not been stated. When, how often, and for what activities will access be allowed (*e.g.*, fishing, hunting, picnicking, camping, etc)?

In an effort to minimize the potential impacts of this project to fish, wildlife, and supporting habitat, assess its efficacy, and provide essential information for future lake management efforts, the Service recommends the following:

1. An analysis of existing in-lake disposal islands in the Kissimmee Chain of Lakes including Lake Toho and Lake Okeechobee should be prepared by the applicant including a determination of vertical settlement, erosion, growth of exotics, and re-accumulation of muck around islands vs. control areas. This analysis should include a review of alternatives to in-lake muck disposal.
2. The Service suggests that this modified permit application provide assurances for monitoring of bald eagle nesting activity to avoid disruption of nesting activity within primary and secondary zone's of those bald eagle nests that are coincident with the shoreline of Lake Toho and which are likely to be disturbed by the mobilization of heavy equipment.
3. A long-term (50-100+ years) management plan should be developed for Lake Toho. Lake management plans should indicate if future in-lake disposal will be an option.
4. The Service recommends that, if in-lake disposal must be used, an in-lake disposal management plan be developed with the following features:
  - a. A monitoring plan should be developed to assess island erosion, water quality, and status of apple snail populations.
  - b. An exotic and nuisance vegetation control plan, including proposed control methods and anticipated frequency of control. Herbicide application techniques and locations and evaluation of effects to federally-listed species should be provided by the applicant. The applicant should continue to address long-term, cost effective solutions (*e.g.*, bioremediation) in lieu of continued pesticide use within the lake's littoral habitat.

- c. A plan for establishing native plant communities including a schedule for re-vegetation, species, densities, and establishing success criteria for percent native vegetation cover at specific times after island construction.
  - d. The applicant should provide a plan outlining the degree of public access allowed on the in-lake disposal islands with justification for the times and activities allowed on islands and ensuring that they will not affect endangered and threatened species. This should include details as to how the public will be notified of accessibility and the need for enforcement.
  - e. A plan should be developed to prevent cattle access to in-lake disposal islands to prevent manure deposition, erosion, and trampling of vegetation.
5. We offer our assistance in the development of a planned study to document plant and animal community composition so that we can provide technical assistance to parameters of interest to conservation of fish and wildlife species, particularly federally-listed species.
6. The Service recommends that an interagency effort be developed to provide a comprehensive observational study to determine water quality ramifications (*e.g.* nutrient analyses, methylmercury concentration, turbidity, etc.) and re-accumulation of muck at treated (scraped), control (not scraped), and areas immediately surrounding in-lake disposal islands. Sampling should be conducted at several sites corresponding to each treatment around the lake and care should be taken to determine effective techniques for measuring muck re-accumulation and to maintain consistent sampling methods. Finally, as recommended by Dierberg *et al.* (1998), simultaneous water quality monitoring and muck accumulation monitoring should occur in one or more control lakes; control lake(s) will help to ascertain the effects of muck removal and island creation.

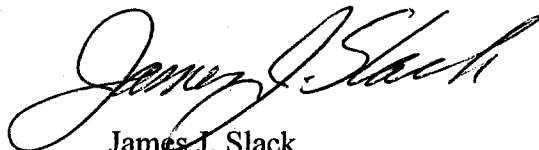
In summary, the Service is supportive of lake habitat enhancement activities that demonstrate benefits to the lake and surrounding ecosystems in which both short term and long term enhancements are considered. Removal of excess deposits of organic material from lake systems can provide significant improvements to fish and wildlife resources and their supporting habitats. We believe that upland disposal of lake sediments will provide the greatest benefit to Lake Toho and reduce the frequency of future muck removal projects. The Service believes that important management strategies, developed from scientific analysis and studies, have not been adequately defined for this project as discussed in this letter. The Service advocates the development and implementation of sustainable lake management practices that focus on reducing muck accumulation via overall reductions in nutrient loading and prevention of invasive macrophyte overgrowth.

Colonel May  
October 5, 2001  
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We continue to offer our willingness to work with the Corps and the applicant in addressing these issues and concerns both within the EIS process and through permitting authorities. The Service recommends that the alternatives to the water regulation schedule, required for the drawdown associated with the original permit, consider the cumulative effects to fish and wildlife resources and their habitats, particularly potential effects to federally listed species. Our concerns regarding adverse affects to the Everglade snail kite will be coordinated through the ESA section 7 consultation process to ensure that potential impacts to the species will be minimized.

Thank you for the opportunity to comment on this project. If you have questions or comments on this project, please contact David Hallac at 561-562-3909 extension 279 or Deborah Pierce at extension 293.

Sincerely yours,



James J. Slack  
Field Supervisor  
South Florida Ecological Services Office

cc:

Corps, Merritt Island, FL (Steve Brooker)  
Corps, Merritt Island, FL (Elizabeth Bishop)  
Corps, Jacksonville, FL (Osvaldo Collazo)  
Corps, Jacksonville, FL (James Duck)  
Corps, Jacksonville, FL (Elizabeth Manners)  
FWCC, Kissimmee, FL (Mike Hulon)  
FWCC, Kissimmee, FL (Marty Mann)  
FWS, West Palm Beach, FL (Beth Burger)  
SFWMD, West Palm Beach, FL (Paul Whalen)

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#### LITERATURE CITED

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- Dierberg, F. E., V. P. Williams, and W. H. Schneider. 1998. Final Report. Water Resources Research Center and the Florida Department of Environmental Regulation.
- James, R. T., K. O'Dell, and V.H. Smith. 1994. Water quality trends in Lake Tohopekaliga, Florida, USA: Responses to watershed management. Water Resources Bulletin 30 (3): 531-546.
- U.S. Fish and Wildlife Service [FWS]. 2001. Letter to Army Corps of Engineers (September 22, 2001)
- \_\_\_\_\_. 1999a. Letter to Army Corps of Engineers. (January 21, 1999).
- \_\_\_\_\_. 1999b. South Florida Multi-Species Recovery Plan. Atlanta, GA.
- \_\_\_\_\_. 1995. Fish and Wildlife Coordination Act Report; Lake Kissimmee Drawdown.
- \_\_\_\_\_. 1994. Fish and Wildlife Coordination Act Report; Kissimmee Headwaters Lakes Revitalization.



DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
P. O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO  
ATTENTION OF

Planning Division  
Environmental Branch

FEB 13 2002

Mr. James Slack  
U.S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960-3559

Dear Mr. Slack:

Enclosed is the biological assessment (enclosure 1) prepared by the U.S. Army Corps of Engineers (Corps) under Section 7 of the Endangered Species Act based on a review of available scientific information concerning the proposed drawdown of Lake Tohopekaliga in Osceola County, Florida. Enclosure 2 is the Draft Environmental Impact Statement for Lake Tohopekaliga Extreme Drawdown and Habitat Enhancement Project.

Based on the enclosed biological assessment, the Corps has determined that the proposed action will not affect the threatened bald eagle (*Haliaeetus leucoccephalus*), endangered wood stork (*Mycteria americana*), or threatened eastern indigo snake (*Drymarchon corais couperi*), but may adversely affect the endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*).

At this time we are initiating consultation under Section 7 of the Endangered Species Act of 1973, as amended. It is requested that a biological opinion be issued.

Points of contact for this project are Ms. Catherine Byrd, 904-232-2016 and Ms. Liz Manners, 904-232-3923.

Sincerely,

James C. Duck  
Chief, Planning Division

Enclosures

G-29

## BIOLOGICAL ASSESSMENT

### LAKE TOHOPEKALIGA EXTREME DRAWDOWN AND HABITAT ENHANCEMENT PROJECT OSCEOLA COUNTY, FLORIDA

1. Project Description. Lake Tohopekaliga (Toho) is located in Osceola County and adjacent to the city of Kissimmee. Primary use of the lake is recreation and flood control. The proposed action involves a temporary deviation in water levels that would allow lake levels to be lowered in order to perform habitat improvement for fish and wildlife species. Specific details on project goals are in Section 1.4 of the enclosed DEIS for Lake Tohopekaliga Extreme Drawdown and Habitat Enhancement Project. Description of project alternatives are in Section 2.0.
2. Site Specific Information. The following threatened or endangered species can be found in the project area: the threatened Everglade snail kite (*Rostrhamus sociabilis plumbeus*), the threatened bald eagle (*Haliaeetus leucoccephalus*), the endangered wood stork (*Mycteria americana*), and the threatened eastern indigo snake (*Drymarchon corais couperi*). There is no critical habitat designated in Osceola County for any of the above listed species. Prior correspondence with FWS (letter dated June 26, 2001) has stated that the project will have no effect on all of the above listed species, with exception to the Everglade snail kite. Enclosure 3 is a White Paper written by Robert Bennetts and Phil Darby titled "The effects of Artificial Drawdowns on Snail Kites (*Rostrhamus sociabilis*) and Florida Apple Snails (*Pomacea paludosa*), with Special Reference to the Lake Tohopekaliga Habitat Enhancement Project". Enclosure 4 is recorded lake levels during previous drawdowns for Lakes Kissimmee, Tohopekaliga, and East Tohopekaliga as requested by FWS in letter dated January 21, 1999. Enclosure 5 is a CD containing snail kite nesting data provided by Rob Bennetts, also requested in the letter dated January 21, 1999.
3. Effects of the Action.
  - a. Apple snails, (*Pomacea paludosa*), the primary prey for the Everglade snail kite, will be immediately negatively impacted by lowering of water levels. Studies performed on Lake



Kissimmee Drawdown in 1997 observed >80% mortality during months when water levels were kept low (FWS letter dated October 5, 2001). This would be expected to result in a two to three year reduced availability of the apple snail as a food source for the Everglade snail kite. Recovery time is dependant upon severity (magnitude and duration) and timing of a given drying event (Darby, 1997).

- b. Nesting season on Lake Toho for the snail kite generally runs from March through June (Rob Bennetts, personal communication). Lake Toho would not be available as a suitable nesting site during the drawdown. Lake Toho is not one of the major snail kite nesting areas during most years, but can be used extensively for nesting when prime nesting areas may be in a drought situation.
- c. Although short-term impacts will be negative to apple snails and nesting season for snail kites, long-term impacts would be beneficial and management actions such as those proposed are required to maintain apple snail habitat and snail kite nesting habitat. Without periodic drawdowns, suitable vegetation will not be maintained and quality of snail kite nesting habitat and apple snail habitat and substrate will decline to the point of becoming very sparse. Site visits to Lake Toho verify the loss of vegetated near shore habitat due to the accumulation of muck, tussocks, and decaying vegetation.
- d. The permit allows for in-lake disposal of approximately 4 million cubic yards of organic material. The permit is in appendix A of the enclosed DEIS. Immediate effects of in-lake disposal are conversion of littoral habitat to upland habitat. Because snail kites require clear and open foraging areas to visually search for apple snails, this may adversely affect snail kite populations. However, a substantial portion of the littoral zone of Lake Toho, including most of the area potentially being converted, is presently unsuitable as foraging habitat for snail kites or apple snails because of dense stands of pickerel weed and/or build up of organic material. Long-term effects of in-lake disposal have not been documented, but are addressed in section 3.10.

4. Cumulative effects of the Action. No future unrelated state or private actions are foreseen at this time.

5. Conservation Measures. The following concerns were stated in FWS letter dated October 5, 2001. FWC staff responded to concerns in letter dated November 26, 2001.

- a. Analysis of existing in-lake disposal islands in the KCOL including a determination of vertical sediment, erosion, growth of exotics, and re-accumulation of muck around islands vs. control areas. This analysis should include a review of alternatives to in-lake muck disposal.

**RESPONSE:** A study is being prepared to look at vertical settlement and nutrients associated with islands and their impacts to water quality. Commission staff is confident that erosion will be minimal but turbidity testing can be incorporated into the water quality study.

- b. Modified permit application which will provide assurances for monitoring of bald eagle nesting activity to avoid disruption of nesting activity within primary and secondary zone's of those bald eagle nests that are likely to be disturbed by the mobilization of heavy equipment.

**RESPONSE:** Bald eagle habitat management guidelines outlined on page 5 of permit are consistent with The Habitat Management Guidelines for the Bald Eagle in the Southeast Region (FWS 1987). Permit states that removal of vegetation with heavy machinery should not occur within the primary or secondary zones during the nesting season of October 1 to May 15.

- c. Long-term lake management plan (50-100 years). Should indicate if future in-lake disposal will be an option.

**RESPONSE:** FWC is currently developing a draft Upper Kissimmee Chain of Lakes Management Plan which includes lake drawdowns. This document is an evolving document due to changes in lakes and/or management goals and strategies.

- d. If in-lake disposal must be used, and in-lake disposal management plan should be developed with the following features:

1. A monitoring plan should be developed to assess island erosion, water quality, and status of apple snail populations.

**RESPONSE:** Commission has contracted with University of Florida and University of West Florida to study impacts of the drawdown, muck removal activities, herbicide

control, and creation of in-lake islands on wildlife including snail kites and apple snails.

2. Exotic and nuisance vegetation control plan, including proposed control methods and anticipated frequency of control. Long-term cost effective solutions in lieu of continued pesticide use (i.e. bioremediation) within the lake's littoral habitat should be addressed.

**RESPONSE:** DEP is responsible for exotic and invasive macrophyte control. FWC staff will continue to work cooperatively with DEP staff as needed.

3. Plan for establishing native plant communities including a schedule for re-vegetation, species, densities, and establishing success criteria for percent native vegetation cover at specific times after island construction.

**RESPONSE:** FWC will comply with the necessary criteria required in the DEP permit concerning re-vegetation.

4. Plan outlining degree of public access, activities, and enforcement that will be used to ensure that threatened and endangered species will not be affected on created islands.

**RESPONSE:** Commission does not have the authority to limit public use on in-lake islands. These are still state lands, and will have unlimited public use. Specific restrictions could be developed as necessary if listed species were found to have colonized in-lake islands following construction.

5. Plan developed to prevent cattle access to in-lake disposal islands to prevent manure deposition, erosion, and trampling of vegetation.

**RESPONSE:** Currently, Commission does not have authority to limit cattle use on in-lake disposal islands. Commission staff does not agree with USFWS staff that cattle access to the in-lake islands should be of concern and would recommend against action to prevent access.

6. Determination of Effect. In summary of information presented in this biological opinion, we have determined that the proposed project may adversely affect the Everglades snail kite but would have no effect on any of the other species in the area. Adverse impacts to the snail kite would be limited to precluding use of Lake Toho for nesting or foraging for the duration of the drawdown and the temporary loss of

snails through desiccation and de-mucking activities. This impact should not have demographic consequences to the kite other than redistribution, provided, that the major wetlands used by kites (e.g., WCA-3A and Lake Okeechobee) are in suitable condition for foraging and nesting (i.e., not experiencing the effects of drought) (personal communication, Rob Bennetts). Overall, the project should result in benefits to the snail kite and apple snails through the improvement of habitat.

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Darby, P. C., P. L. Valentine-Darby, and H. F. Percival. 1998. Assessing the impact of the Lake Kissimmee Restoration on Apple Snails. Final Report. Florida Game and Fresh Water Fish Commission, Bureau of Nongame Wildlife; Tallahassee, Florida.

Fish and Wildlife Conservation Commission, Letter received from FWC dated November 26, 2001.

United States Fish and Wildlife Service, Letter received from FWS dated June 26, 2001.

United States Fish and Wildlife Service, Letter received from FWS dated October 5, 2001.

THE EFFECTS OF ARTIFICIAL DRAWDOWNS ON SNAIL KITES (*Rostrhamus sociabilis*) AND FLORIDA APPLE  
SNAILS (*Pomacea paludosa*), WITH SPECIAL REFERENCE TO THE LAKE TOHOPEKALIGA HABITAT  
ENHANCEMENT PROJECT

*A White Paper*

by

ROBERT E. BENNETTS, PhD  
U.S.G.S. Florida Caribbean Science Center  
7920 NW 71<sup>st</sup> St., Gainesville, FL 32653

AND

PHILIP C. DARBY, PhD  
Dept. of Biology, University of West Florida  
11000 University Parkway  
Pensacola, FL 32514

## PROBLEM STATEMENT

The Florida Fish and Wildlife Conservation Commission has initiated efforts toward conducting a habitat enhancement project on Lake Tohopekaliga (Toho) that is intended to remove nuisance vegetation and organic material that has built up under a management regime of stabilized water levels relative to a more variable regime that existed historically under more natural conditions. This enhancement will necessitate an extreme drawdown of water levels relative to this stabilized regime, and would be accompanied by mechanical scraping of the substrate to remove organic material. This material would subsequently be deposited on upland sites or in-lake islands. During the permitting and environmental assessment processes, several issues have been raised regarding the effects of this project on the Florida apple snail (*Pomacea paludosa*) and endangered snail kite (*Rostrhamus sociabilis*) which feeds on the apple snail. Because each of us has conducted research on topics relevant to this issue, we have been asked to provide opinions on several occasions regarding the potential impacts of drawdowns (or deviations from regulation schedules) on apple snails and/or snail kites. These are complex issues for which there are often no clear black and white answers. Consequently, there have been several interpretations of the opinions we have expressed. We believe that there would be value in summarizing our respective positions with regards to the potential impacts of this project on apple snails and/or snail kites, so that all parties have the same foundation for their interpretations. As such, the following represents a summary of our current opinions on this topic, based on our respective research. Unless otherwise stated, the following statements represent our collective opinions.

## SPECIFIC ISSUES/QUESTIONS

### *Will the draw down affect apple snails?*

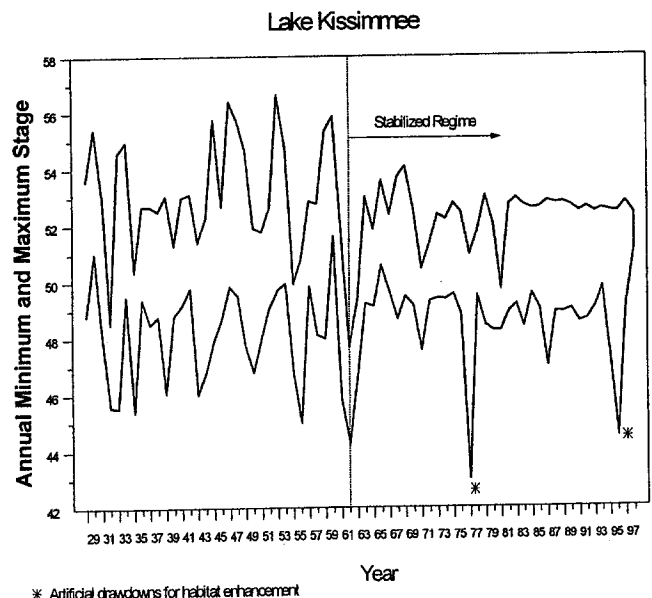
Yes. A drawdown of this magnitude and the subsequent scraping of the substrate would be expected to affect apple snails with near certainty.

### *To what extent would the apple snail population be expected to initially decline at Lake Toho during and following the drawdown?*

We could never say with certainty. Our best knowledge to date comes from work on Lake Kissimmee (Darby et al. 1998) during a similar management endeavor. At Lake Kissimmee, estimates of the overall abundance of apple snails after the drawdown was 20% of the pre-drawdown during 1996 (the year following the drawdown) and 13% of the pre-drawdown estimate during 1997. We expect similar declines during the drawdown at Lake Toho, and research is being conducted on apple snails during the proposed Lake Toho drawdown to assess the impacts.

### *Isn't the combination of drawdown followed by scraping an extreme stress on the apple snail populations, and are they capable of withstanding such extreme events at periodic intervals?*

Based on the hydrologic records, drying events of the extreme magnitude intended during the "habitat enhancement project" occurred at periodic intervals under more natural conditions, and all evidence is that apple snails are well adapted for coping with such events. However, historically, drying events (i.e., when the water table falls below ground level) occurred more often in the mid to late spring and of course they were not accompanied by scraping of the substrate. The timing of the event is a separate issue (see below). The scraping is intended to reduce organic buildup which was likely reduced through oxidation by



Modified from Kitchen et al. (2002).

more frequent drying events under a natural hydrologic regime. The extent to which scraping affects apple snails beyond the effect of the drying itself is not well understood. Darby et al. (1998) found no snails in sites on Lake Kissimmee with extensive build up of organic material, indicating these were unsuitable habitats for snails. In addition, Darby et al. found that scraping these sites resulted in snails moving into these previously uninhabited sites after reflooding; the increase, however, was slight (4 snails per site relative to the 30-60 snails found in other sampling sites prior to the drawdown). Thus, the evidence from Lake Kissimmee suggests that sites with heavy organic buildup targeted for scraping are likely to experience a slight increase in snail abundance after treatment because of improved habitat quality. The effect of scraping on snail populations above and beyond the drying event is also the subject of specific research being conducted on apple snails during the proposed Lake Toho drawdown.

***How long would the population of apple snails be expected to be suppressed?***

Again our best knowledge to date comes from work on Lake Kissimmee (Darby 1998). At Lake Kissimmee, apple snail populations were well below pre-management conditions for at least 2 years following the drawdown (Darby et al. 1998), and 2 of 4 sites were still well below pre-drawdown levels 5 years after reflooding (Darby et al. 2001). Thus, we expect that snail populations will be suppressed for at least 2-3 years, and quite possibly longer at some locations.

***What factors might be expected to influence the extent of impacts to the apple snail population?***

During the Lake Kissimmee drawdown, the substrate had a substantial influence on snail abundance and response, but this is not under the control of the management agencies. However, there are also factors related to the drawdown itself which would likely influence the extent of the impact, including the magnitude, timing, and duration of the drawdown. The magnitude will by necessity be extreme in order to gain access by equipment used to remove the organic material. The timing and duration of the drawdown have direct impacts on survival and recruitment of apple snails. Apple snails can aestivate during a dry down, and survival rates did not fall below 50% until 4 months in dry conditions (Darby 1998). However, the Lake Kissimmee littoral zone was dry approximately 5.5 months, and based on our research likely exceeded the capacity of most snails to survive. Equally, if not more important, is the fact the Lake Kissimmee drawdown (and upcoming Toho drawdown) occurred during peak snail reproduction. Stranded snails discontinue all mating and egg laying behaviors. Several researchers have documented that the majority of apple snail egg cluster production consistently occurs in March, April and May (Darby 1998). Drying events that encompass the snail breeding season (the case for the 1995 Lake Kissimmee and upcoming Toho drawdown) will greatly suppress snail recruitment. This is especially pertinent given that the life span of a snail has been estimated at 12-16 months. If these snails spend the last few months of their life span aestivating (when they would normally be breeding) a substantial proportion of the population would die without ever reproducing. This may substantially prolong the recovery times following these anthropogenic drawdowns compared to what would have been expected under a more natural regime.

Another issue for which there is only weak anecdotal evidence at this point is that sites that are invaded by torpedo grass following the drawdown treatment may be of poor quality for apple snails. One such site at Lake Kissimmee had 2.84 snails/m<sup>2</sup> before the drawdown and was still 0.10 snails/m<sup>2</sup> five years after the drawdown. Research during the Lake Toho drawdown should help to clarify the extent of this problem.

***Will the drawdown likely affect snail kites?***

Probably yes. A drawdown of this magnitude in combination with scraping the substrate will at the very least temporarily reduce the availability of prey for kites. This would be expected to preclude kites from nesting on Lake Toho, and possibly other lakes with low water levels, during the drawdown and likely for at least a year or two after the drawdown.

***What would be the likely impacts on snail kites at Lake Toho?***

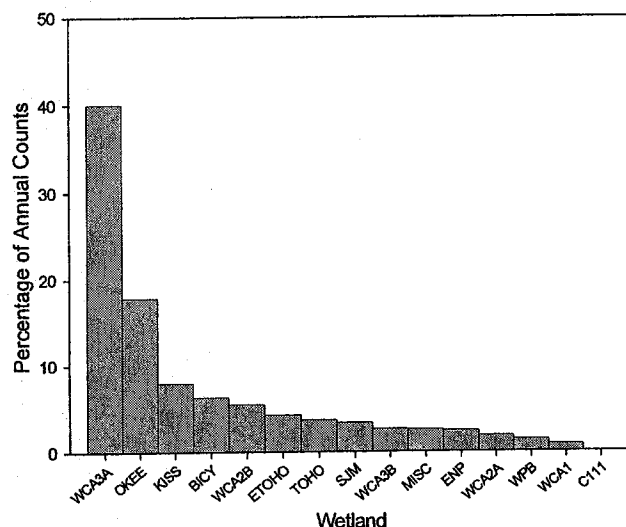
Because of reduced prey availability, and based on observations from Lake Kissimmee during the 1995-96 drawdown, we would expect that nesting by snail kites on Lake Toho would not occur, or would occur at very low levels for at least 2 years after the drawdown. This does not, however, imply that these kites would not breed. It is



nearly certain that any kites on Lake Toho at the time of the drawdown would disperse to alternative locations, assuming that there was not a region-wide drought (see below). If conditions were suitable at alternative locations, there is no reason to believe that kites would not breed at these sites. Thus, depending on the conditions at sites other than Lake Toho, it is quite likely that the impact of the drawdown would be limited to dispersal, and possibly the failure of any nests that were ongoing at the time of the drawdown.

***Would the potential impacts at Lake Toho likely affect the snail kite population as a whole?***

It depends. If the drying is a local phenomenon, then its influence on the population as a whole is likely to be negligible. However, if the drawdown was conducted concurrently with a system-wide drought, then the influence could be substantial (Bennetts and Kitchens 1997). During droughts, the availability of refugia is probably extremely important for the survival of kites (Takekawa and Beissinger 1987). An indication of the extent to which the system would need to buffer the effects can be seen from the average percentage of use by snail kites in each wetland during the annual surveys from 1969-1994. If only Lake Toho were dry, then there would be a substantial portion of the remainder of the system that could buffer any impacts effects (i.e., serve as refugia for kites to survive and/or breed). If however, conditions at Lake Toho were suppressed at the same time as WCA3A and Lake Okeechobee, then there would be a substantially smaller portion of the system that could buffer the impacts.



***Would the overall habitat for snail kites on Lake Toho be significantly improved in the long term by the draw down and/or muck removal?***

Probably yes. Most areas of snail kite habitat have been under artificially-stable water management regimes. Periodic drying is necessary to maintain high-quality habitat over longer time scales. However given the prolonged recovery time for apple snails following the enhancement efforts in combination with a potential rotation of such efforts occurring every 8-10 years, it means that there will be a balance between benefits and recovery time. Thus, every effort should be made to minimize the recovery time for apple snails through timing and duration of the drawdowns.

***If an area is already experiencing a drying event, whether natural or artificial, is there any problem with amplifying the effects by deviating from existing schedules (e.g., lowering the stage even further or prolonging the duration of the drying event) for other purposes (e.g., water supply) since "the damage is already done" (e.g., proposed schedule deviations in WCAs 1 and 3 during 2001)?***

Artificially increasing the duration of a drying event may substantially prolong the recovery of the apple snail population, thus snail kites. Such a deviation on a major nesting area (e.g., WCA3A) could have a major impact on the survival and/or reproduction depending on the conditions throughout the remainder of the system while the area recovers.

***Would the creation of "in-lake disposal islands" convert portions of the existing littoral zone to upland habitats, thus constituting a loss of foraging habitat for snail kites?***

It is certainly true that the type of "high mound" islands created during the previous lake enhancements on Lakes Toho and Kissimmee would effectively convert those sites to upland habitats. However, a substantial portion of the littoral zone of Lake Toho, including most of the area potentially being converted, is presently unsuitable as foraging habitat for snail kites or apple snails because of dense stands of pickerel weed and/or build up of organic material. Because the total area of conversion would likely be quite small relative to the area of improved habitat quality resulting from enhancement efforts, there would in all probability be a substantial net gain in foraging habitat rather than a loss. This does not imply that in-lake disposal is preferred for snail kite foraging habitat. It is not. There would likely be additional gain (although probably small) in foraging habitat should upland disposal be possible.

There have also been proposals to create "low stature" islands that would be strategically placed to augment existing topographic features (e.g., shoals), and that would be planted with willow. If done correctly (the details of which are beyond the scope of this paper), such islands could actually enhance nesting opportunities for snail kites and other species (e.g., wading birds) that currently use cattail, which is subject to greater risk of nest collapse.

***Would artificial nest supports be a reasonable means of avoiding loss of nests during a draw down?***

No. While it is true that nests in cattail can become weak and more prone to collapse when the marsh is dry, it is also true that the extreme nature of this drawdown will in all probability affect the foraging as well as nesting habitat. Thus, moving nests to artificial structures would likely just prolong nesting activity that was doomed to failure. It is probably better that any nests initiated fail, so that the birds have a greater chance to re-nest at another location.

***Should drying be initiated before the snail kite breeding season (e.g., in December) so that kites will not initiate nests that would likely fail during the dry down?***

This argument has been suggested on several occasions within the context of the Lake Toho restoration and for other projects where drawdowns are necessary. While it is true that initiating the drying before the nesting season may preclude Snail Kites from nesting at that location, it is also true that dry downs that precede the primary egg-laying period of apple snails (Mar-Apr) plus a growth period of approx 1 month and/or are of prolonged duration (> 4 months) may prolong the recovery period required for apple snails. Thus, there is a tradeoff between short-term effects on snail kite nesting and longer-term effects on apple snail recovery and foraging opportunities for snail kites. It is our belief that the loss of the few kite nests due to initiation of drying in spring, would be a minor impact compared to the extended recovery time for apple snails when drying is initiated during winter.

### ***Conclusions and Recommendations***

The stabilized water levels under current management are clearly degrading habitat for apple snails, thus snail kites. Thus, we generally support the habitat enhancement project. However, there are several factors that could minimize the impact to apple snails and snail kites. The first is that the spatial extent of a drying event probably has considerable influence on whether the impacts are local and behavioral (i.e., dispersal) or widespread to the population as a whole and numerical (i.e., decrease survival and/or reproduction). To preclude the latter, we would recommend that under no circumstances should an artificial drawdown be initiated while the effects of a larger-scale drought are present at other major sites within the Florida snail kite habitat network, particularly in WCA3a and Lake Okeechobee.

Secondly, the timing and duration of drying events probably has a considerable effect on the recovery of apple snails after the drawdown. Naturally occurring drying events typically occurred during late spring when water levels tend to be lowest. Thus they tended to occur after the peak reproductive period of apple snails. Drawdowns that are initiated before apple snail reproduction will likely preclude apple snails from reproducing that year. Similarly,

drying events that are of extended duration (i.e., > 4 months) probably exceed the ability for snails to survive. Thus drying events that are of extended duration and initiated early could mean that both reproduction and survival are severely suppressed. We fully recognize that there are constraints on doing the work required to meet the habitat enhancement objectives. However, to the extent possible, drawdowns should be initiated late in the spring after apple snail reproduction has occurred. Similarly, if at all possible, the duration of artificial drying events should be as short as possible, preferable < 4 months.

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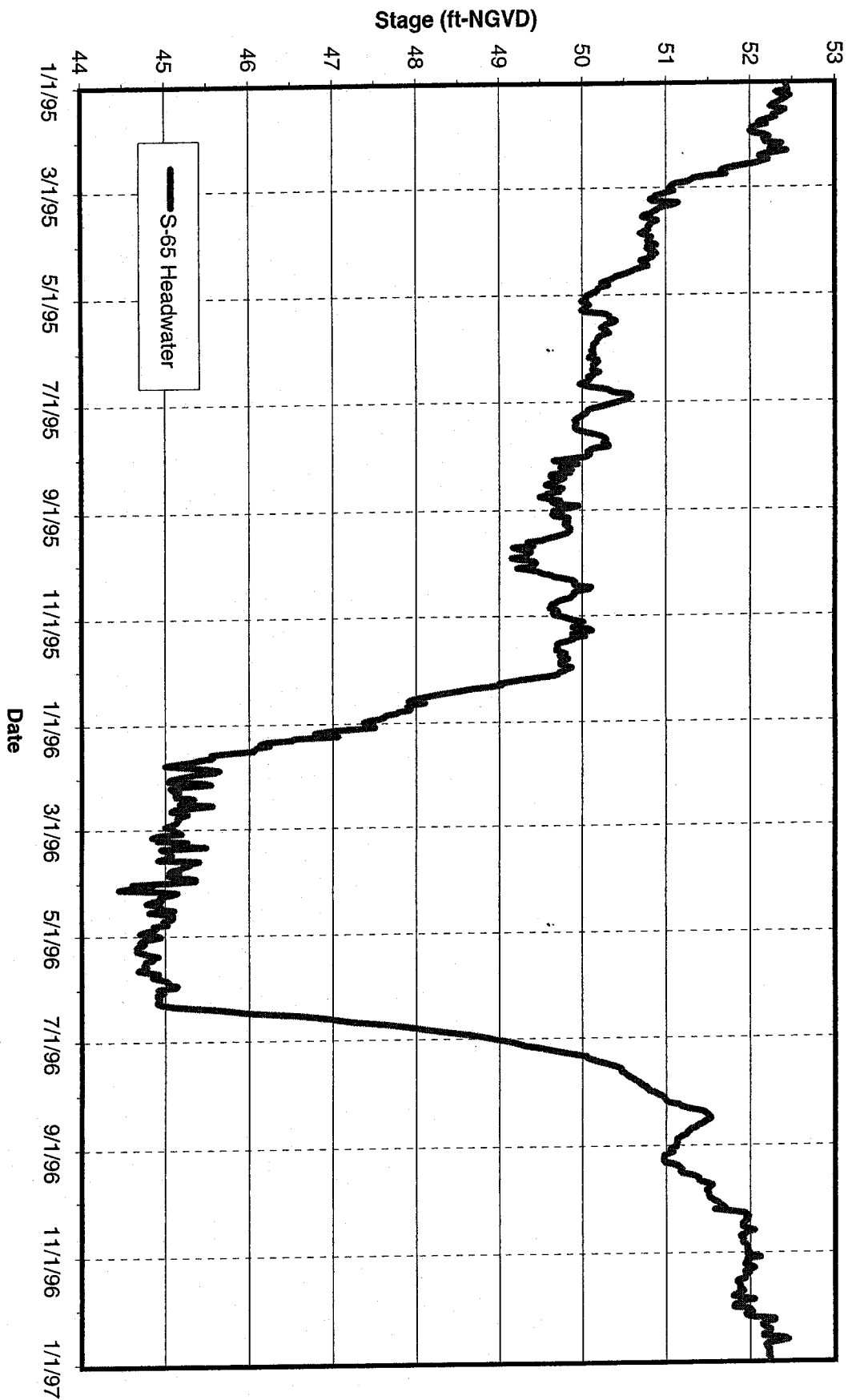
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#### BIOGRAPHIES

Dr. Robert Bennetts has been conducting research on snail kites since 1986. Dr. Bennetts earned his PhD. From the University of Florida in 1998. The topic of his dissertation was the demography and movement of snail kites in Florida. Prior to that, he was employed by the University of Florida as a field biologist conducting research on the nesting ecology of snail kites in Water Conservation Area 3A. Dr. Bennetts has conducted research on numerous other topics and was the director of ornithological and long-term research from 1999-2001 for the Station Biologique de la Tour du Valat in southern France. To date he has published approximately 50 papers in peer-reviewed scientific journals, including approximately 20 papers on snail kites. In addition he has authored or co-authored two book chapters on snail kites, and 3 others on apple snails. Dr. Bennetts is presently a research ecologist with the Biological Resources Division of U.S.G.S. at the Florida Caribbean Science Center in Gainesville, Florida.

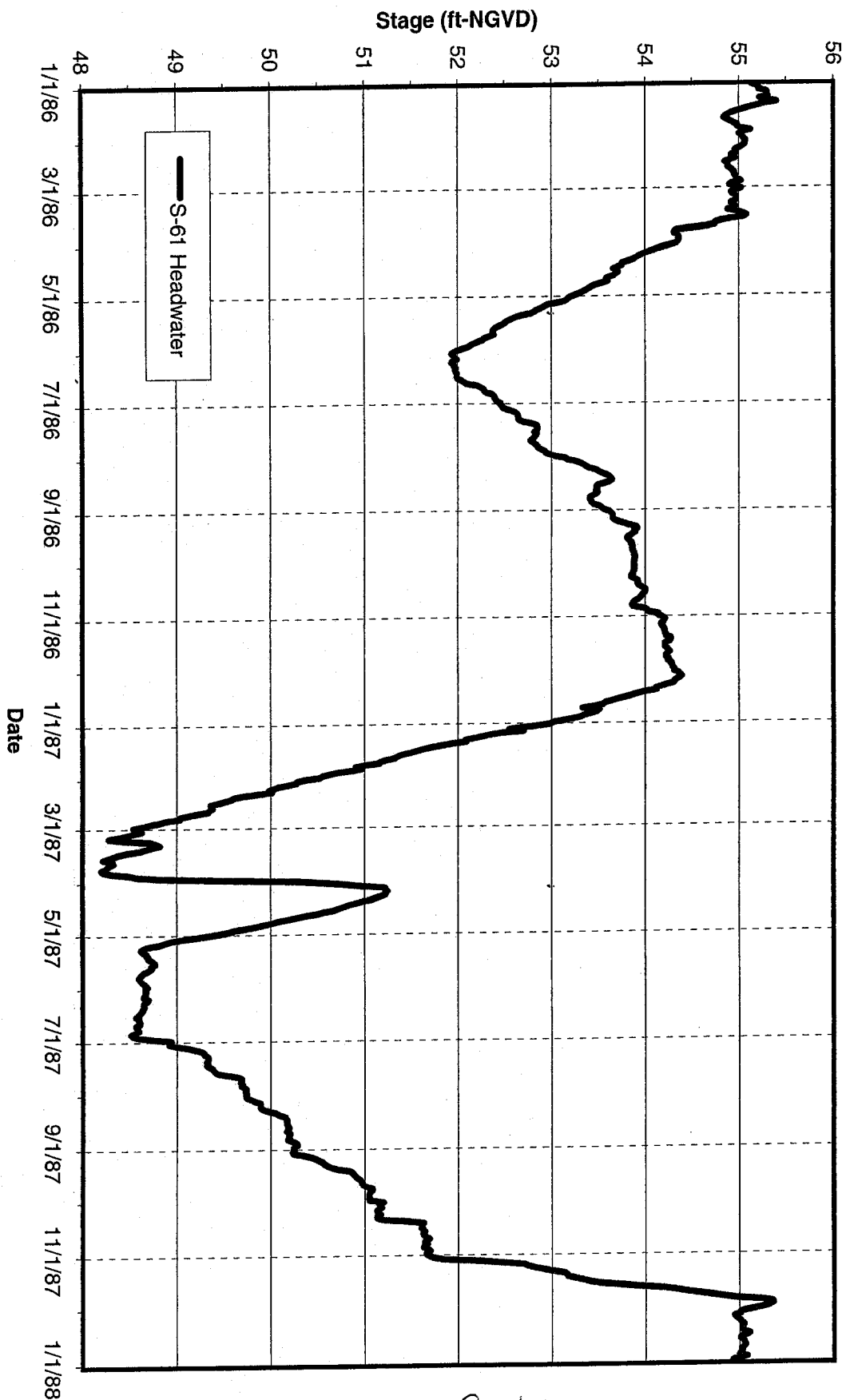
Dr. Phil Darby has extensive experience studying the ecology of apple snails in relation to water levels. Dr. Darby earned his Ph.D. from the University of Florida ('98) by completing a dissertation devoted to understanding the relationship between hydrology and apple snail population demography. He has over 10 years of experience conducting research in Florida wetlands, including WCA3A, Loxahatchee National Wildlife Refuge, the Kissimmee Chain of Lakes, and the Upper St. Johns Marsh. He has spent five years designing, testing and publishing papers (2 in press, 1 in review) on effective apple snail sampling techniques that are required for estimating snail abundance. He also has several publications (2 published, 1 in review, 2 in preparation) dealing with the impacts of drying events on snails and other aspects of snail ecology. He currently has other applesnail related research projects in central and south Florida (contracted through his current position as Assistant Professor, University of West Florida), and teaches a graduate level class (with lab) in wetlands ecology.

# Lake Kissimmee (1995-1996)



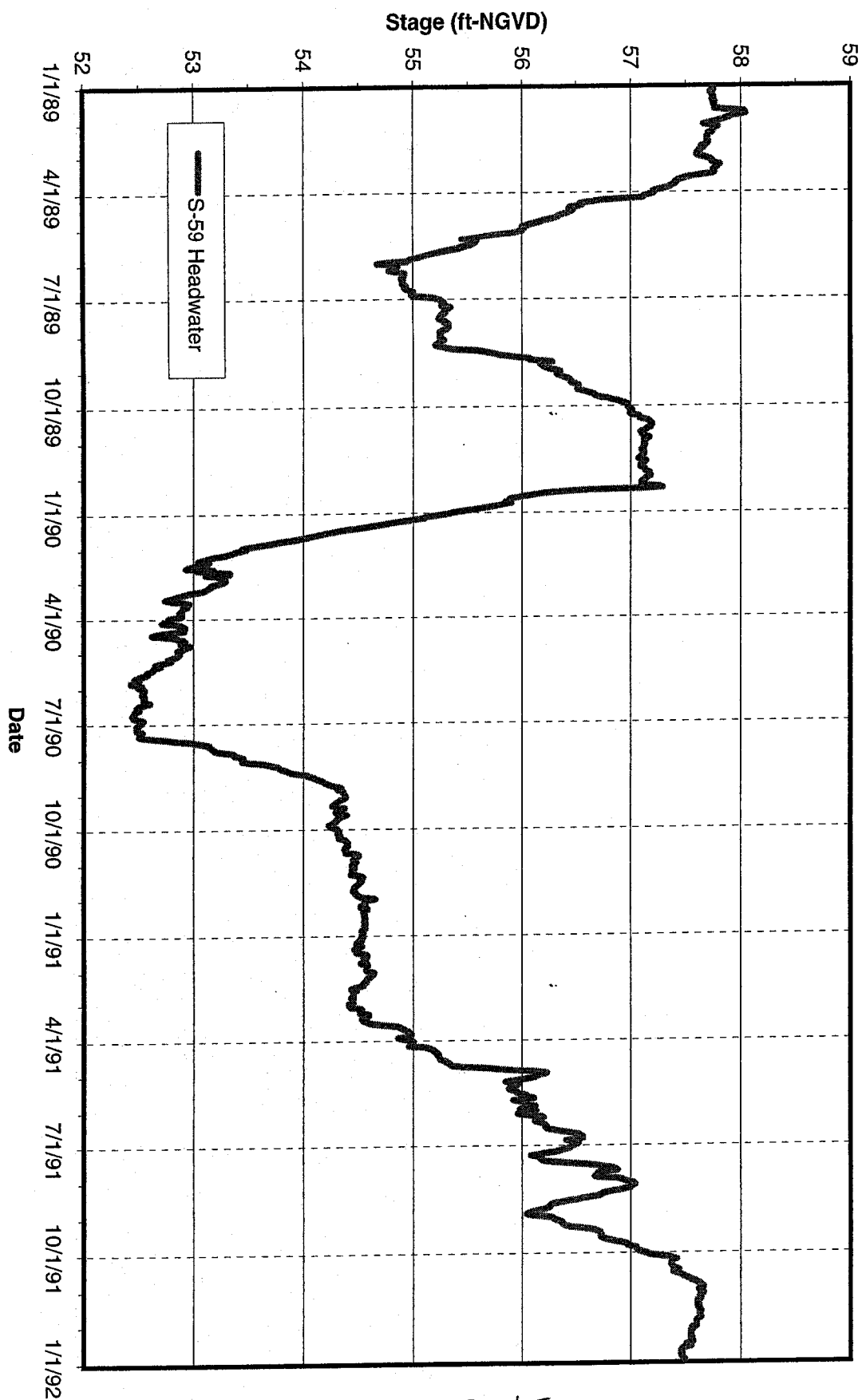
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# Lake Tohopekaliga (1986-1987)



G-44

# East Lake Tohopekaliga (1989-1991)



G-45



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
South Florida Ecological Services Office  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960



March 7, 2002

James C. Duck  
Chief, Planning Division  
Jacksonville District Corps of Engineers  
Post Office Box 4970  
Jacksonville, Florida 32232-0019

Log No.: 4-1-99-F-306  
Application No.: 1998-05442 (IP-EB)  
Dated: December 22, 1998  
Project: Lake Tohopekaliga (Toho)  
Extreme Drawdown and Habitat  
Enhancement Project  
County: Osceola

Dear Mr. Duck:

This letter responds to your request, dated February 13, 2002, for initiation of formal consultation under section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

We have evaluated and concur with the Corps' no effect determination with respect to the following listed species that are expected to occur in the vicinity of the Lake Toho Extreme Drawdown and Habitat Enhancement Project site: the endangered wood stork (*Mycteria americana*), threatened bald eagle (*Haliaeetus leucocephalus*), and the threatened eastern indigo snake (*Drymarchon corais couperi*). We also concur that the project may adversely affect the endangered snail kite (*Rostrhamus sociabilis plumbeus*). Thus, we will be preparing a biological opinion on the snail kite for this project. The Service believes that the proposed drawdown, currently under review through the EIS process, is interrelated and interdependent to the proposed muck removal activities; thus, we will consider both actions when preparing the biological opinion.

Thank you for your biological assessment, the snail kite nesting data from Rob Bennetts, and the White Paper that summarizes Rob and Phil Darby's opinions on the potential impacts of the project on snail kites. The Biological Assessment and White Paper do not completely address some important issues regarding the proposed project. The Service believes that the Biological Assessment should: 1) describe the potential for a reduction in nesting, forage (apple snail) abundance, and foraging habitat in Lake's Cypress, Hatchineha, and Kissimmee; 2) include any data that support the statement in your biological assessment that: "Overall, the project should

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James C. Duck

March 7, 2002

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result in benefits to the snail kite and apple snails through improvement of habitat.”; and 3) state whether or not the request to initiate formal consultation is for Alternative 4w, the preferred alternative. Finally, the Corps must inform us whether the proposed permit modification, to increase the volume of dredged material and number of spoil islands, is to be considered part of the proposed action. We need all of the above information to properly determine the effects on the snail kite and to develop the terms and conditions to minimize incidental take of the species.

Under the Conservation Measures section of the Corps' Biological Assessment, we recommend including conservation measures for the snail kite. The White Paper is very useful but does not discuss the cumulative effects of the drawdown on snail kites that not only use Lake Toho for nesting and foraging, but also Lakes Cypress, Hatchineha, and Kissimmee.

When we initiated informal consultation in 1999, we were not aware that Lakes Kissimmee, Hatchineha, and Cypress would also be drawn down in the process of drawing down Lake Toho. In order to complete formal consultation, we will need snail kite data for all the lakes affected by the drawdown, in particular, Lakes Toho, Kissimmee, Hatchineha, and Cypress. While the snail kite nesting data you provided could be useful, it is not clear what the survey data represent because there is no data key and the data are redundant; thus, these data are difficult to interpret. In addition, the survey data only contain occurrences of snail kite nests on Lake Toho for a few years. The data are likely to be a preliminary compilation of survey results from some geographic areas of Florida (Rob Bennetts, pers. comm.). For example, we do not know which lakes were surveyed and if they were surveyed for all years.

Considering these data deficiencies, we request more past (1986-1999) and current (2000 - 2002) snail kite nesting data and snail kite survey data (number of individual occurrences) for Lakes Toho, Kissimmee, Hatchineha, and Cypress. Because all these lakes will experience low water for an extended period of time, we seek nesting and individual count data so that we can determine the extent to which the proposed action may affect the snail kite. In order to start collecting the aforementioned data, the Service has contacted Martin Mann, Duke Hammond, and Jim Rodgers from the Florida Fish and Wildlife Conservation Commission (FWC) and Rob Bennetts from the USGS Florida and Caribbean Science Center, all of whom have been generous with their time and willing to provide the requested data. We will continue to work with the Corps and FWC, to obtain additional data for use in preparation of the biological opinion.

Upon receipt of the requested additional information the Service will initiate formal consultation. Section 7 of the ESA allows the Service up to 90 days to formulate a draft biological opinion and incidental take statement in conjunction with the Corps and the FWC and an additional 45 days to deliver a final biological opinion and incidental take statement. In an effort to accelerate this

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James C. Duck

March 7, 2002


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process, the Service will continue working with the Corps and FWC to obtain additional data, has already begun preliminary preparation of the biological opinion, and will forward the draft document to you as soon as possible.

Please keep in mind that, at the current time and for an indefinite period in the future, the Service does not have email or internet capabilities. All correspondence should be directed through the mail, phone, or fax (772) 562-4288). Thank you for your cooperation in this project. If you have any questions regarding this project, please contact David Hallac at (772) 562-3909, extension 279.

Sincerely yours,



 James J. Slack  
Field Supervisor  
South Florida Ecological Services Office

cc:

Corps, Merritt Island, FL (Steve Brooker and Elizabeth Bishop)  
Corps, Jacksonville, FL (Elizabeth Manners and Catherine Byrd)  
FWC, Kissimmee, FL (Mike Hulon)  
FWC, Kissimmee, FL (Marty Mann)  
FWS, West Palm Beach, FL (Beth Burger)  
SFWMD, West Palm Beach, FL (Paul Whalen)

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DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
P. O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO  
ATTENTION OF

Planning Division  
Environmental Branch

APR 05 2002

Mr. James Slack  
U.S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960-3559

Dear Mr. Slack:

This letter is in reference to Endangered Species Act coordination for the Lake Tohopekaliga (Toho) Extreme Drawdown and Habitat Enhancement Project in Osceola County, Florida.

On February 13, 2002, the U.S. Army Corps of Engineers (Corps) submitted a Biological Assessment (BA) along with a request to initiate formal consultation under Section 7 of the Endangered Species Act of 1973, as amended. Your office responded by letter dated March 7, 2002. Your letter suggested revisions to the BA and also asked for clarification of which alternative the Corps would like formal consultation to cover. Enclosed is a revised BA with changes highlighted in yellow.

On March 28, 2002, the Corps received an e-mail from Mr. David Hallac, of your staff, clarifying what information was needed to initiate formal consultation. It stated no additional biological information is required, but additional information is required on the scope of work of the project.

At this time we are stating that we would like to initiate formal consultation under Section 7 of the Endangered Species Act of 1973, as amended, for Alternative 4w, the preferred alternative. It is requested that a Biological Opinion (BO) be issued. We request that the BO evaluate the lowering of water levels on all of the lakes, which is alternative 4w, and the activities to be performed under the following permits:

- a) Permit 1998-05442 IP-EB, the currently issued permit, which authorizes removal of 4 million cubic yards of aquatic vegetation from Lake Tohopekaliga (Toho)

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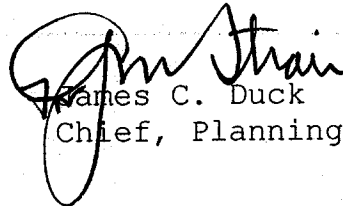
- b) Permit 1998-05442 MOD-EB, the permit modification, which includes an additional 2.7 million cubic yards of muck removal from Lake Toho (total of 49 islands)
- c) Permit application for Lake Hatchineha, which requests removal of 3.7 million cubic yards of muck removal from Lake Hatchineha (40 islands)
- d) Permit application for Lake Cypress, which requests removal of 1.4 million cubic yards of muck removal from Lake Cypress (20 islands)
- e) Currently issued permit that covers minor muck removal to be performed in Lake Tiger, with no in-lake disposal planned (this permit has been forwarded to your office)

In response to your email received on April 1, 2002, there is also a Lake Kissimmee permit application that has been submitted by The Florida Fish and Wildlife Conservation Commission (FWC) to our Regulatory Division. However, no muck removal is planned for this year or next year on Lake Kissimmee. This permit has been applied for in order to perform touch up work on shorelines and is unrelated to the proposed drawdown and habitat enhancement activities. Therefore, this activity does not need to be covered in the BO.

Copies of permit applications have been forwarded to your office on March 27, 2002 by FWC. The FWC has also provided additional project information as requested in your e-mail.

Points of contact for this project are Ms. Catherine Byrd, 904-232-2016 and Ms. Liz Manners, 904-232-3923.

Sincerely,



James C. Duck  
Chief, Planning Division

Enclosure

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## BIOLOGICAL ASSESSMENT

### LAKE TOHOPEKALIGA EXTREME DRAWDOWN AND HABITAT ENHANCEMENT PROJECT OSCEOLA COUNTY, FLORIDA

1. Project Description. Lake Tohopekaliga (Toho) is located in Osceola County and adjacent to the city of Kissimmee. Primary use of the lake is recreation and flood control. The proposed action involves a temporary deviation in water levels that would allow lake levels to be lowered in order to perform habitat improvement for fish and wildlife species. Specific details on project goals are in Section 1.4 of the enclosed DEIS for Lake Tohopekaliga Extreme Drawdown and Habitat Enhancement Project. Description of project alternatives are in Section 2.0. Lakes Toho, Cypress, Hatchineha, and Kissimmee would all be temporarily lowered under the preferred alternative, 4w. We request the Biological Opinion be issued for Alternative 4w.
2. Site Specific Information. The following threatened or endangered species can be found in the project area: the threatened Everglade snail kite (*Rostrhamus sociabilis plumbeus*), the threatened bald eagle (*Haliaeetus leucoccephalus*), the endangered wood stork (*Mycteria americana*), and the threatened eastern indigo snake (*Drymarchon corais couperi*). There is no critical habitat designated in Osceola County for any of the above listed species. Prior correspondence with FWS (letter dated June 26, 2001) has stated that the project will have no effect on all of the above listed species, with exception to the Everglade snail kite. Enclosure 3 is a White Paper written by Robert Bennetts and Phil Darby titled "The effects of Artificial Drawdowns on Snail Kites (*Rostrhamus sociabilis*) and Florida Apple Snails (*Pomacea paludosa*), with Special Reference to the Lake Tohopekaliga Habitat Enhancement Project". Enclosure 4 is recorded lake levels during previous drawdowns for Lakes Kissimmee, Tohopekaliga, and East Tohopekaliga as requested by FWS in letter dated January 21, 1999. Enclosure 5 is a CD containing snail kite nesting data provided by Rob Bennetts, also requested in the letter dated January 21, 1999.
3. Effects of the Action.

Kissimmee Drawdown in 1997 observed >80% mortality during months when water levels were kept low (FWS letter dated October 5, 2001). This would be expected to result in a two to three year reduced availability of the apple snail as a food source for the Everglade snail kite. Recovery time is dependant upon severity (magnitude and duration) and timing of a given drying event (Darby, 1997).

- b. Nesting season on Lake Toho for the snail kite generally runs from March through June (Rob Bennetts, personal communication). Lake Toho would not be available as a suitable nesting site during the drawdown. Lake Toho is not one of the major snail kite nesting areas during most years, but can be used extensively for nesting when prime nesting areas may be in a drought situation.
- c. Although short-term impacts will be negative to apple snails and nesting season for snail kites, long-term impacts would be beneficial and management actions such as those proposed are required to maintain apple snail habitat and snail kite nesting habitat. Without periodic drawdowns, suitable vegetation will not be maintained and quality of snail kite nesting habitat and apple snail habitat and substrate will decline to the point of becoming very sparse. Site visits to Lake Toho verify the loss of vegetated near shore habitat due to the accumulation of muck, tussocks, and decaying vegetation.
- d. The combined permits of work to be performed on Lakes Toho, Cypress, Hatchineha, and Tiger allow for in-lake disposal of approximately 13.2 million cubic yards of organic material. Immediate effects of in-lake disposal are conversion of littoral habitat to upland habitat. Because snail kites require clear and open foraging areas to visually search for apple snails, this may adversely affect snail kite populations. However, a substantial portion of the littoral zone of Lake Toho, including most of the area potentially being converted, is presently unsuitable as foraging habitat for snail kites or apple snails because of dense stands of pickerel weed and/or build up of organic material. Long-term effects of in-lake disposal have not been documented, but are addressed in section 3.10.

4. Cumulative effects of the Action. Future state actions foreseen at this time include minor scraping on Lake Kissimmee to touch up where

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the shoreline was scraped in 1996. This work will involve no new island creations and is not currently scheduled, but may occur 2-4 years from now.

5. Conservation Measures. The following concerns were stated in FWS letter dated October 5, 2001. FWC staff responded to concerns in letter dated November 26, 2001.

- a. Analysis of existing in-lake disposal islands in the KCOL including a determination of vertical sediment, erosion, growth of exotics, and re-accumulation of muck around islands vs. control areas. This analysis should include a review of alternatives to in-lake muck disposal.

**RESPONSE:** A study is being prepared to look at vertical settlement and nutrients associated with islands and their impacts to water quality. Commission staff is confident that erosion will be minimal but turbidity testing can be incorporated into the water quality study.

- b. Modified permit application which will provide assurances for monitoring of bald eagle nesting activity to avoid disruption of nesting activity within primary and secondary zone's of those bald eagle nests that are likely to be disturbed by the mobilization of heavy equipment.

**RESPONSE:** Bald eagle habitat management guidelines outlined on page 5 of permit are consistent with The Habitat Management Guidelines for the Bald Eagle in the Southeast Region (FWS 1987). Permit states that removal of vegetation with heavy machinery should not occur within the primary or secondary zones during the nesting season of October 1 to May 15.

- c. Long-term lake management plan (50-100 years). Should indicate if future in-lake disposal will be an option.

**RESPONSE:** FWC is currently developing a draft Upper Kissimmee Chain of Lakes Management Plan which includes lake drawdowns. This document is an evolving document due to changes in lakes and/or management goals and strategies.

- d. If in-lake disposal must be used, and in-lake disposal management plan should be developed with the following features:

1. A monitoring plan should be developed to assess island erosion, water quality, and status of apple snail populations.

**RESPONSE:** Commission has contracted with University of Florida and University of West Florida to study impacts of the drawdown, muck removal activities, herbicide control, and creation of in-lake islands on wildlife including snail kites and apple snails.

2. Exotic and nuisance vegetation control plan, including proposed control methods and anticipated frequency of control. Long-term cost effective solutions in lieu of continued pesticide use (i.e. bioremediation) within the lake's littoral habitat should be addressed.

**RESPONSE:** DEP is responsible for exotic and invasive macrophyte control. FWC staff will continue to work cooperatively with DEP staff as needed.

3. Plan for establishing native plant communities including a schedule for re-vegetation, species, densities, and establishing success criteria for percent native vegetation cover at specific times after island construction.

**RESPONSE:** FWC will comply with the necessary criteria required in the DEP permit concerning re-vegetation.

4. Plan outlining degree of public access, activities, and enforcement that will be used to ensure that threatened and endangered species will not be affected on created islands.

**RESPONSE:** Commission does not have the authority to limit public use on in-lake islands. These are still state lands, and will have unlimited public use. Specific restrictions could be developed as necessary if listed species were found to have colonized in-lake islands following construction.

5. Plan developed to prevent cattle access to in-lake disposal islands to prevent manure deposition, erosion, and trampling of vegetation.

**RESPONSE:** Currently, Commission does not have authority to limit cattle use on in-lake disposal islands. Commission staff does not agree with USFWS staff that cattle access to the in-lake islands should be of concern and would recommend against action to prevent access.

6. Determination of Effect. In summary of information presented in this biological opinion, we have determined that the proposed project may adversely affect the Everglades snail kite but would have no effect on



any of the other species in the area. Adverse impacts to the snail kite would be limited to precluding use of Lakes Toho, Cypress, Hatchineha, and Kissimmee for nesting or foraging for the duration of the drawdown and the temporary loss of snails through desiccation and de-mucking activities. This impact should not have demographic consequences to the kite other than redistribution, provided, that the major wetlands used by kites (e.g., WCA-3A and Lake Okeechobee) are in suitable condition for foraging and nesting (i.e., not experiencing the effects of drought) (personal communication, Rob Bennetts). Overall, the project should result in benefits to the snail kite and apple snails through the improvement of habitat. (Allen, 1998, Sweatman et al, unpublished data).

## CITATIONS

Allen, Herb. 1998. Habitat Enhancement Projects Revitalize Snail Kite Habitat. Fisheries Updates. Florida Game and Fresh Water Fish Commission, Division of Fisheries; Tallahassee, Florida.

Bennetts, R.E., Kitchens, W.M., and DeAngelis, D. 1998. Recovery of the Snail Kite in Florida: Beyond a Reductionist Paradigm. Trans 63<sup>rd</sup> No. Am. Wildlife and Natural Resources Conference

Darby, P.C., P.L. Valentine-Darby, R.E. Bennetts, J.D. Croop, H.F. Percival, and W. M. Kitchens. 1997. Ecological studies of apple snails (*Pomacea paludosa*, Say). Final Report prepared for South Florida Water Management District and St. Johns River Water Management District. Contract # E-6609, Florida Cooperative Fish and Wildlife Research Unit, Gainesville, Florida.

Darby, P. C., P. L. Valentine-Darby, and H. F. Percival. 1998. Assessing the impact of the Lake Kissimmee Restoration on Apple Snails. Final Report. Florida Game and Fresh Water Fish Commission, Bureau of Nongame Wildlife; Tallahassee, Florida.

Sweatman, J.J., J. Buntz, J. Rodgers, Jr., M. Hulon, and E. Moyer. The effects of Lake Enhancement in the Kissimmee Chain of Lakes on Florida's Snail Kites (Draft). Florida Game and Fresh Water Fish Commission; Kissimmee, Florida.

Fish and Wildlife Conservation Commission, Letter received from FWC dated November 26, 2001.

United States Fish and Wildlife Service, Letter received from FWS dated June 26, 2001.

United States Fish and Wildlife Service, Letter received from FWS dated October 5, 2001.



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

South Florida Ecological Services Office  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960



April 10, 2002

James C. Duck  
Chief, Planning Division  
Jacksonville District Corps of Engineers  
Post Office Box 4970  
Jacksonville, Florida 32232-0019

Log No.: 4-1-99-F-306  
Application No.: 1998-05442 (IP-EB)  
Dated: December 22, 1998  
Project: Lake Tohopekaliga (Toho)  
Extreme Drawdown and Habitat  
Enhancement Project  
County: Osceola

Dear Mr. Duck:

This letter responds to your request, dated April 5, 2002, for initiation of formal consultation under section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

In our last letter to you, dated March 7, 2002, we evaluated and concurred with the Corps' no effect determination with respect to the following listed species that are expected to occur in the vicinity of the Lake Toho Extreme Drawdown and Habitat Enhancement Project site: the endangered wood stork (*Mycteria americana*), threatened bald eagle (*Haliaeetus leucocephalus*), and the threatened eastern indigo snake (*Drymarchon corais couperi*).

We also concurred that the project may adversely affect the endangered snail kite (*Rostrhamus sociabilis plumbeus*). However, before we were able to initiate formal consultation, we requested additional information regarding the scope of the federal action and details regarding the individual projects. Thank you for providing these details in the letter you sent on April 5, 2002.

The Service believes that the proposed drawdown, which will affect Lakes Toho, Kissimmee, Hatchineha, Cypress, and Tiger, is interrelated and interdependent to the proposed muck removal activities at each of these lakes; thus, we will consider both actions when preparing the biological opinion.

Specifically, and as you requested, we are preparing the biological opinion for:

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James C. Duck  
April 10, 2002  
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1. Alternative 4w, the preferred alternative to lower water levels in Lakes Toho, Kissimmee, Hatchineha, Cypress, and Tiger.
2. The Lake Toho Habitat Enhancement Project which includes scraping of 4 million cubic yards of muck and the construction of 47 in-lake disposal islands.
3. Permit 1998-05442 MOD-EB, the permit modification application for Lake Toho, which increases the project's dredging volume by 2.7 million cubic yards and results in the construction of 2 additional in-lake disposal islands.
4. The application for the Lake Hatchineha Habitat Enhancement Project, which requests scraping of 3.7 million cubic yards of muck and the construction of 40 in-lake disposal islands.
5. The application for the Lake Cypress Habitat Enhancement Project, which requests scraping of 1.4 million cubic yards of muck and the construction of 22 in-lake disposal islands.
6. The currently permitted project on Tiger Lake to remove 150,000 cubic yards of muck and place all of the material on upland disposal sites.

We will not be covering the potential muck removal project on Lake Kissimmee, because you stated that muck removal will not occur during the drawdown. However, we will still assess the effects of the drawdown on Lake Kissimmee.

The Service initiated formal consultation on April 5, 2002. Section 7 of the ESA allows the Service up to 90 days to formulate a draft biological opinion and incidental take statement in conjunction with the Corps and the FWC and an additional 45 days to deliver a final biological opinion and incidental take statement. In an effort to accelerate this process, the Service will continue working with the Corps and FWC to obtain additional data and has already begun preliminary preparation of the biological opinion.

Thank you for your cooperation in this project. If you have any questions regarding this project, please contact David Hallac at (772) 562-3909, extension 279.

Sincerely yours,



James J. Slack  
Field Supervisor  
South Florida Ecological Services Office

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